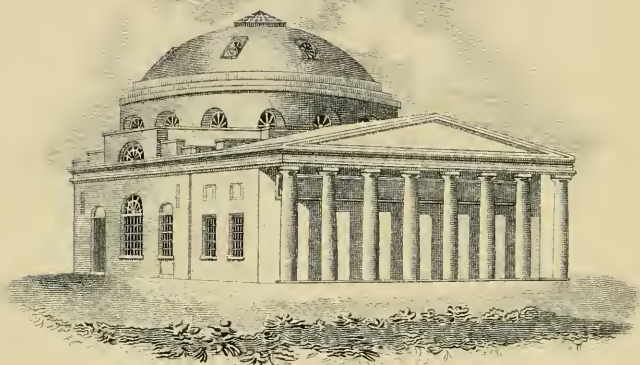


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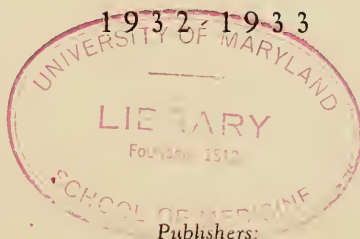
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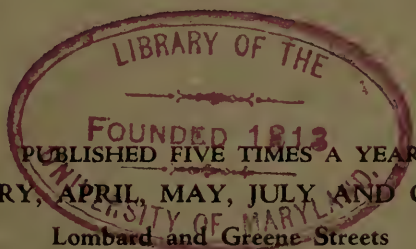
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UNIVERSITY OF MARYLAND



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BULLETIN

OF THE

SCHOOL OF MEDICINE

UNIVERSITY OF MARYLAND

Vol. XVII

JULY, 1932

No. 1

As a mark of affection, love and esteem, this issue of the *Bulletin* is dedicated to the memory of Dr. C. Hampson Jones, Professor of Hygiene and Public Health, University of Maryland, School of Medicine, and Commissioner of Health of Baltimore. He labored early and late to safeguard Baltimoreans from disease. He was a fearless public official *sans peur et sans reproche*. He will be sorely missed by his friends, associates and colleagues. Associating himself with the public health movement when it was in its infancy, Dr. Jones became one of the best known public health officials in the United States. The greatest achievement of his career was his long fight for a pure water supply for the city of Baltimore. Coupled with this crusade were his campaigns for a modern sewerage system, a pure milk supply, a contagious disease hospital. The city of Baltimore has lost an efficient public servant; the University of Maryland, a valuable member of its teaching corps; and his co-laborers and students a kind friend.

THE GONOCOCCUS IN DERMATOLOGY*

BY MELVIN S. ROSENTHAL, M. D.

BALTIMORE, MD.

The Neisserian organism as a diagnostic factor in dermatology has not yet received the consideration which is due it although the work of many investigators both here and abroad shows that there is an increasing interest in it.

This increasing interest is due, no doubt, to the growing appreciation of gonorrhea as a systemic infection. Formerly, gonorrhea was thought of only in terms of a local infection, but evidence is steadily accumulating which shows gonorrhea as a general or systemic disease of great frequency and importance.

The opportunities for diagnostic advice, and guidance in the treatment of patients, which many of the large clinics and medical centers are now extending to the general practitioner, together with the advantages of free interchange of opinion and information among the several specialties, which these institutions afford, are resulting in better diagnosis and treatment for all cases of gonorrhea and the early detection of cases presenting symptoms of systemic gonorrhea.

Cole states, that the rôle which the gonococcus plays in human infections is an important one. The gonococcus not infrequently induces lesions in other parts of the body, either primarily or by extension. The organisms may pass into the blood and give rise to a true septicemia. In other instances a few organisms may pass into the blood and without multiplying be carried to distant parts causing so-called metastatic foci—extragenital pathological conditions due to gonorrhea, the great variety and gravity of which are astonishing. By the laity and I am afraid by some of the general practitioners, gonorrhea is considered as a mild and aside from the social aspects, an unimportant disease. But the physician, who regards its far-reaching consequences, hardly secondary to those of syphilis, does not regard it so lightly.

Osler was well aware of the seriousness of gonorrhea and its effects upon the body beyond the local lesion. He speaks of it as one of the

*Read at a meeting of the American College of Physicians, March 25, 1931.

most widespread and serious of the infectious diseases, presenting many features for consideration, and while the local lesion is too often thought to be trifling, in its singular obstinacy, in the possibilities of permanent sexual damage to the individual himself, and still more in the "grisly troop" which may follow in its train, gonorrhea does not fall short of syphilis in importance.

When we consider, says Irons, the prevalence of gonococcal infection, with its attendant complicating involvement of the serous membranes, prominent among which are those of the heart and joints, it becomes evident that the gonococcus is one of the most frequent invaders of the blood.

In many cases of systemic gonorrheal infection the diagnosis remains obscure by reason of the clinical resemblance to other diseases, such as, typhoid fever, acute rheumatic fever, malaria, tuberculosis, or some of the other forms of sepsis, and it not uncommonly happens that only late in the course of the disease or at the post-mortem table is the true etiology discovered.

Why gonorrhea should remain localized in certain cases and become generalized in others is at present unknown, but the fact remains that it does. Further, it does not follow necessarily that the most severe local infections lead most frequently to the general dissemination of the organism. In fact, cases exhibiting a mildness of initial disturbance, which may pass unnoticed by the patient, may lead to a severe general infection and death. Osler reports a fatal case of a man, who ten days after the onset of a urethritis, had chills and high fever, and who became profoundly toxic, and died on the morning of the fourth day following the chill. This case presented during life no localizing symptoms, and at necropsy the only focal lesion to be found was a prostatic abscess no larger than the end of the thumb. Thayer records the case of a young man of twenty-two, who developed in connection with an acute urethritis, an intermittent fever of extreme severity. Observed for several weeks in the hospital, the heart sounds were perfectly clear, and no evidence of any localization of the infection was to be detected beyond the history of a very slight arthritis, which had entirely cleared up. The patient died several weeks after leaving the hospital. No necropsy was obtained. In both of these cases the organism was isolated from circulating blood during life.

Considering the great frequency of a mild general disturbance, even during the period of so-called local infection, the question may be

quite seriously considered as to whether all cases of gonorrhea are not really of a general character to a more or less degree, and while there is no wealth of evidence to prove this point, recurring evidence of a general infection in certain cases after repeated fresh attacks of acute urethritis would lend support to this view.

It is usual in skin conditions associated with gonorrhea to find symptoms of septicemia. And in numerous instances in cases of keratoderma, it was found that the onset of the skin symptoms occurred after repeated fresh attacks of acute urethritis.

Skin eruptions, in association with gonococcal infections, are of fair frequency. More frequent perhaps than is generally supposed, as the gonorrheal etiology is often overlooked. Skin manifestations are practically always an evidence of a generalization of the virus.

Some obscurity surrounds the person who first mentioned skin eruptions in connection with urethral infections. Norris credits Pidoux with this contribution, who in 1872, in an address before the Société Médicale des Hospitaux, mentions cutaneous lesions that were caused by gonorrhea. My investigations, thus far, have failed to establish the priority of Pidoux' observations, but he may well have been the first since he was deeply interested in the secondary manifestations of gonorrhea.

Disregarding, however, the first mention of skin diseases resulting from gonococcal infection, it is a well established fact, that in 1893, Vidal, the great French dermatologist, in an article, which has become a classic, gave the first comprehensive description of skin infection of positive gonococcal origin. From the time of the publication of this contribution, dates the active interest of dermatologists in this important subject.

In 1899, Buschke, who made an exhaustive study of skin lesions associated with urethral infections, classified these conditions into four groups as follows: (1) erythemas, (2) urticarial eruptions, which included erythema nodosum, (3) the bullous and hemorrhagic eruptions, and (4) the hyperkeratosis. For general purposes, this classification remains unchanged.

The skin lesions associated with gonorrheal infections are sometimes extremely difficult to diagnose, due to a number of complicating influences. First, the various internal anti-gonococcal remedies are frequently in themselves causes of certain rashes, and other types of

cutaneous lesions. These, however, can usually be excluded in cases with general infections. Secondly, the protean character of systemic gonorrhea gives rise to many skin manifestations, which bear a close clinical resemblance to skin eruptions occurring in other severe types of septic infection. Thus, for example, a hyperemic maculopapular rash resembling very closely the rose spots of typhoid fever has been observed in five authentic cases.

As pointed out by Rostenberg and Silver, there are numerous reports in the literature of cases of psoriasis arthropathica, in which the lesions on the palms and soles resembled those of gonorrheal keratosis, which are unhesitatingly classified as gonorrheal keratoderma because the clinical picture corresponds so well with the original report of Vidal; and rightly so. Clinically, it is comparatively easy to recognize the characteristic syndrome. The real difficulty arises when an attempt is made to prove that this unique clinical picture is gonorrheal in spite of all negative bacteriologic observations and in spite of the resemblance to arthropathic psoriasis. Some authors, not being able to convince themselves concerning the gonorrheal etiology and seeing the similarity of the lesions to those classified as psoriasis arthropathica, went to the extreme of considering all cases of blennorrhagic keratoderma as a form of psoriasis arthropathica.

Adamson, in an article entitled "Keratoderma Blennorrhagica: Is It a Form of Psoriasis?", noted the striking similarity in the two diseases, clinically and histologically, and cites several cases where there were, in addition to keratoderma, patches of psoriasis, and several cases where the diagnosis was first thought to be psoriasis. One of these cases had been under the care of Graham Little.

While there are these difficulties of diagnosis associated with erythemas, the urticarias, and the bullous eruptions, there is the more or less definite syndrome for the recognition and identification of keratoderma. This syndrome of urethral infection, polyarthrits, and a rupial-like eruption, as described by Vidal in 1893, has appeared with classical precision in all of the cases which have been reported to date. Further, this syndrome is usually, though not always, associated with cardio-renal disease and other evidences of septicemia.

In spite of this definite diagnostic aid, many cases of keratoderma remain unrecognized. Graham Little calls attention to this interesting fact, and cites as an example the case reported by Sequeira (the first

English case to be reported), which had been under the care of his colleague, J. F. Smith, and escaped recognition.

It is not altogether surprising that these cases are overlooked, when one considers the system prevailing in this country and in England, of the separation of the dermatological and the genito-urinary diseases, which, on the Continent, are professed by the same specialists. It is the opinion of Little and others, that because of this separation, the dermatologist does not see gonorrheal cases, while the genito-urinary expert does not recognize the complications which especially mark this peculiar syndrome.

Opinions regarding the relationship of the gonococcus to the skin infections are by no means uniform. For the most part, this difference of opinion seems to be due to insufficient methods for the recovery of the diplococcus from the lesions, and to the manner in which many of the case-histories have been worked up.

From the biology of the Neisserian organism it would not appear that the skin, subject as it is to frequent changes of temperature and invested chiefly by squamous epithelium, would be a favorable habitat for this organism.

Thomson tried hard to cultivate gonococci from the cheesy material under the hard, horny skin of Allport's cases of keratoderma, but always failed "due perhaps", he said, "to the fact that many of the smears were heavily infected with secondary organisms, such as diphtheroid bacilli, staphylococci, and Gram-negative bacilli. In the smears from one of the very severe cases there were found masses of Gram-negative diplococci resembling gonococci, but definite proof was lacking, due to the failure to grow them in the culture tube."

In a few instances, investigators have claimed to have recovered the organisms from the various skin lesions. The majority opinion, however, seems to favor the theory of Buschke and others, who believe that certain skin lesions, for example, the keratodermias, are due, not to the gonococcus per se, but to its circulating toxins.

It is not the purpose of this article to review the literature on this very interesting and important condition. This has been done very ably, from time to time, by some of the foremost men in the field, e. g., Little in England, Simpson and Keim in the United States, Buschke and Zeiler in Germany; but it is the hope that through the presentation of another American case to awaken interest in gonorrhea

as a systemic infection with special reference to its significance for the dermatologist and the general practitioner.

J. B., age 38 years, married ten years, no children, no contraceptive methods used.

There is nothing in his early history which may have influenced his present condition. In 1916 he had gonorrhea for which he received vigorous and from all accounts scientific treatment. About one month after contracting the disease and during the course of treatment he developed a left-sided epididymitis. The urethritis was treated by daily irrigations of permanganate of potash solutions and by an injection of protargol.

The usual dietary and hygienic regulations were followed. The epididymitis was treated by hot fomentations, local applications and sedatives. Prostatic massage and sounds were used before the patient was pronounced cured, eight months after the onset of the disease. Following the attack, he had a periodic urethral discharge which was pronounced non-specific.

In 1920 with a view to marriage he was examined by a prominent genito-urinary specialist who found no evidence of any urethral disease and advised marriage.

His marital life was apparently normal as far as sexual matters were concerned.

In June, 1928, he was referred to me with a profuse urethral discharge of several days' duration. The history as to source of infection in venereally infected patients is notoriously untrustworthy, and this patient was no exception. He denied absolutely extra-marital intercourse in spite of the fact that the microscope showed innumerable intra-cellular diplococci and the text-book picture of early gonorrheal infection. Subjectively his symptoms likewise pointed to a recent infection. The patient protested that it was a return of the old infection of 12 years ago and attributed the recurrence to alcoholic excesses. He strenuously objected to any examination of his wife.

The case progressed favorably, most of the treatment being carried out by the patient at his home.

On September 6, 1928, the patient developed a right-sided epididymitis, confining him to bed for ten days.

September 23, the patient applied for treatment for a painful right knee. There was marked hydrarthrosis, tenderness, and inability to walk. The temperature was 101° F. and the pulse rate 120. Involvement of the right ankle, left knee, left ankle, and both wrists rapidly followed. A diagnosis of gonorrheal polyarthrititis was made and the patient treated accordingly. The persistent high temperature of 101° to 104° F. was uninfluenced by the usual treatment. On October 14, he was admitted to Mercy Hospital. At this time the pain seemed more severe in both knees and wrists. There was a vesicopustular eruption which was more marked and of greater severity over the affected joints and on the soles of both feet and the palms of both hands. At the time the eruption was attributed to the application of heat and the local use of oil of wintergreen.

The patient had lost 35 pounds since the onset of the disease in June. He was pale and anaemic. The skin was dry and shining. A peculiar typhoid odor was noticeable. Both knees were exquisitely painful, swollen and the slightest effort at moving caused intense pain. The eruption consisted of two types—one, of numerous small yellow pustules, jelly like in appearance and covered by a dry, firm scale, rupial in character; the other type was of an erythematous character with a serous exudate and a slightly adherent crust. Around the nails and infiltrating under the nails of the hands there was a sero-purulent and a wart-like mass, raising the nail from the bed. The patient refused a biopsy and our studies were consequently made from the crusts,

scales and the exudate. In none of this debris was any evidence of diplococci found. The blood-Wassermann was negative. The Widal test was likewise negative. The complement-fixation test was positive. The hemoglobin was 55%; red corpuscles, 4,500,000; white cells, 15,000, of which neutrophils constituted 70%, small lymphocytes 20% and large lymphocytes 10%.

Examination of urethral secretion showed pus, fibrin and blood cells. The prostate was large, both lateral lobes sensitive and a number of fluctuating areas. The expressed secretion contained pus, intra-cellular diplococci and blood cells. In the deep membranous urethra, a slight stricture was noted on sounding.

The urine showed a trace of albumen, epithelium, pus but no casts.

Treatment.—The joints were bled at varying intervals. Injection of milk protein seemed to give comfort. The prostate was massaged followed by irrigations of permanganate of potash. Later injection of mixed gonococci vaccine was used.

As the urethral and prostatic conditions cleared up there was a marked resolution of the skin manifestations.

On March 18, 1929, the patient was discharged free from symptoms. I have seen the patient at frequent intervals since and the skin remains normal.

It may be felt that since there has been, in the whole literature, less than one hundred cases of this disease reported, that it is of minor significance. But the very fact that these cases have been collected in forty years, is significant. It demonstrates clearly that the field of gonorrhea, as a constitutional condition has yet to be explored.

It is manifestly impossible for the limited number of specialists engaged in genito-urinary diseases and dermatology to make any appreciable impression upon so gigantic a problem. Without the active cooperation of the entire profession (particularly of the man in general practice), the work which is being so faithfully performed by a few, will fall short of the need.

The present easy accessibility of all kinds of diagnostic aids should encourage the general practitioner not only to make better diagnoses, but should be a challenge to him.

It is certainly not to be expected that the individual general practitioner, or specialist for that matter, will engage in active research in this field, but there are certain things which he may do, and which he should be doing, which will supply valid criteria for the use of the research worker. Among these are (1) carefully taken histories; (2) thorough physical examinations; (3) laboratory diagnosis; (4) painstaking evaluation of the findings; and (5) early and frequent consultation.

Every well worked up case history, every confirmed diagnosis, in particular instances, adds its bit to the sum total of knowledge, and is each man's contribution to research.

FACULTY CHANGES NOT INCLUDED IN THE APRIL BULLETIN

Dean J. M. H. Rowland has announced the following changes in the teaching staff of the University of Maryland School of Medicine, for the year 1932-1933:

PROMOTIONS

- F. L. Jennings, M. D. From Associate Professor of Surgery to Professor of Clinical Surgery
- D. J. Pessagno, M. D. From Associate in Surgery to Associate Professor of Surgery
- Clyde Marvel, M. D. From Instructor in Surgery to Associate in Surgery
- L. J. Millan, M. D. From Instructor in Genito-Urinary Surgery to Associate in Genito-Urinary Surgery
- F. R. McKenzie, M. D. From Instructor in Diseases of the Nose & Throat to Associate in Diseases of the Nose & Throat
- T. Nelson Carey, M. D. . . . From Instructor in Medicine to Associate in Medicine
- Samuel Morrison, M. D. . . . From Assistant in Gastro-Enterology to Instructor in Gastro-Enterology
- Henry C. Smith, M. D. From Assistant in Medicine to Instructor in Medicine
- L. P. Gundry, M. D. From Assistant in Medicine to Instructor in Medicine
- Samuel T. Helms, M. D. . . . From Assistant in Medicine to Instructor in Medicine
- Elizabeth Sherman, M. D. . . From Assistant in Pediatrics to Instructor in Pediatrics
- W. W. Walker, M. D. From Assistant in Surgery to Instructor in Surgery
- J. J. Leyko, M. D. From Assistant in Surgery to Instructor in Surgery
- Wm. R. Geraghty, M. D. . . . From Assistant in Surgery to Instructor in Neurological Surgery
- Thomas O'Rourke, M. D. . . . From Assistant in Diseases of the Nose & Throat to Instructor in Diseases of the Nose & Throat

NEW APPOINTMENTS

- Elias Faison, M. D. Instructor in Pathology*
- George H. Yeager, B. S., M. D. Instructor in Anaesthesia
- Grant E. Ward, A. B., M. D. Instructor in Surgery
- Samuel H. Culver, M. D. Assistant in Surgery
- J. Willis Guyton, M. D. Assistant in Surgery
- Hugh A. Bailey, M. D. Assistant in Surgery
- Samuel T. Helms, M. D. Assistant in Genito-Urinary Surgery
- J. Howard Burns, M. D. Assistant in Medicine
- Joseph Rosenblatt, M. D. Assistant in Pediatrics
- G. Bowers Mansdorfer, M. D. . . . Assistant in Pediatrics
- Luther E. Little, M. D. Assistant in Surgery and Anatomy
- Benjamin S. Rich, M. D. Assistant in Otology
- C. Victor Richards, M. D. Assistant in Gastro-Enterology
- James G. Arnold, Jr., B. S., M. D. . . . Fellow in Neurological Surgery

* Inadvertently omitted from 1932 issue of the catalog.

PHILIP SYNG PHYSICK,
THE FATHER OF AMERICAN SURGERY

BY RANDOLPH WINSLOW, M.D.
BALTIMORE, MD.

Amongst the names of early American surgeons, probably, none stands out with more brilliant effulgence than that of Philip Syng Physick, to whom the title of "The Father of American Surgery" was applied by his colleagues and admirers in the City of Philadelphia. He was born on Third Street near Arch Street, Philadelphia, on July 7, 1768. His father was Edmund Physick, an Englishman, a man of strong mental powers and a person known for his integrity; who, previous to the Revolutionary War, held the office of keeper of the great seal of the colony of Pennsylvania and during that conflict was the custodian of the estate of Governor John Penn, situated at Lansdowne, near Philadelphia, on which Mr. Physick resided during the struggle. His mother was Miss Abigail Syng, the daughter of a celebrated silversmith of that city, who was a highly respected citizen and a man of considerable wealth.

When he was 11 years of age he was placed at the Friends' Academy in Fourth Street under the care of Robert Proud. It is said that though he lived at a distance of several miles, he was never late in his attendance and was held up as an example for the emulation of other scholars, who, though living near at hand, found difficulty in reaching school on time. Leaving this academy, he entered the University of Pennsylvania, where he obtained an excellent classical education and received the degree of Bachelor of Arts in May, 1785. One month later he commenced the study of medicine under the direction of Dr. Adam Kuhn, who was at that time Professor of the Theory and Practice of Medicine in the University of Pennsylvania, and continued this connection for a period of three years.

While under this instruction he was a most diligent reader of many voluminous medical works, from which he doubtless acquired an extensive insight into the medical theories and practices of an earlier day. While he attended medical lectures at the University of Pennsylvania, he did not graduate from that institution, but desiring to attend the great medical schools and hospitals in London and Edinburgh, accompanied by his father, he embarked for Europe in November, 1788, and arrived in London in January, 1789. Here, through his father's connections, he was introduced into some of the

most learned and polished society of that metropolis and soon thereafter Mr. Physick was able to place him under the immediate care and instruction of John Hunter, at that time one of the most celebrated anatomists and surgeons in the world. When Mr. Physick asked Mr. Hunter what books he should procure for his son, the latter took him into his dissecting room and pointing to the cadavers upon the tables said, "These are the books which your son will learn under my direction; the others are of little use."

During the year 1789 the young Physick served under Mr. Hunter in a most zealous and exemplary manner and so won the esteem and affection of his distinguished master that through his influence on January 1, 1790, he was appointed House Surgeon to St. George's Hospital for one year, which was an unusual honor for a foreigner, and one that caused dissatisfaction among some of the disappointed applicants of native birth. Soon thereafter a man with a dislocated shoulder was admitted and it fell to Physick to attempt the reduction. The students assembled in a critical mood, but the luxation was replaced in a skillful manner and their criticism was changed into praise. After serving with distinction the usual period of one year, he quitted the institution with testimonials of the highest character from the hospital authorities. He now received his diploma from the Royal College of Surgeons, in London, and, at the invitation of Mr. Hunter, he became an inmate of his house and assisted him in his professional work and with his physiological experiments until he departed for Edinburgh, in May, 1791. While in Edinburgh he entered the famous university of that city and after attending diligently the lectures and clinics of that institution, he obtained the M.D. degree in May, 1792. In order to accomplish this he was obliged to write a thesis in the Latin language, the subject of which was "Apoplexy." It is said that Mr. Hunter wished him to locate in London and even offered to associate him in his work but Dr. Physick felt obliged to decline this flattering offer. He returned to Philadelphia in September, 1792, after an absence of nearly four years, and located his office on Mulberry Street, now Arch, near Third Street. As is frequently the case, patients did not flock to him in large numbers during his first year as a practitioner.

Being discouraged at his lack of securing patronage, he remarked to a Mr. Priestman that he would feel more happy if he had something like a certain livelihood and suggested that "if your family and

some others would give me, at any rate, twenty dollars a year each, for acting as their physician, I should be satisfied." Mr. Priestman agreed to this and also influenced several other families to do the same. In 1793, Philadelphia was visited by a severe epidemic of yellow fever and the authorities having established an infectious hospital at Bush Hill, Dr. Physick offered his services and was elected physician to the institution. While serving in this capacity he rendered valuable services which brought him into favorable notice with the citizens and was the means of starting him on his subsequent illustrious career. He also contracted yellow fever during this epidemic, from which he recovered but with a weakened constitution.

In 1794 he was elected one of the surgeons to the Pennsylvania Hospital, a position he filled for many years with great success. He was especially dextrous in the treatment of fractures and his modification of Desault's apparatus for fractures of the femur was used with the happiest results for many years. He also introduced the treatment of ununited fractures by means of a seton passed between the ends of the bones and reports a case of non-union of twenty months' duration that was cured by this means. Anaesthesia was still unknown and surgeons were denied the beneficent help of this boon; consequently, many procedures that are carried out successfully at the present time were in those days almost impossible.

In order to overcome the rigidity and resistance of the muscles in old and difficult dislocations, Dr. Physick practiced free blood letting and, while the patient was relaxed and almost or quite unconscious, he was able to reduce such luxations in many instances. He was an expert operator in the removal of cataracts from the eyes and it is said that he rarely failed in restoring sight to this class of patients. Indeed, his very last surgical effort was the removal of a cataract from the eye of a foreigner, who had remained in the city a whole year for the purpose of having Dr. Physick operate on him. In the removal of stones from the bladder he acquired great skill and probably the last major operation that he performed was a lithotomy on the illustrious Chief Justice John Marshall, at that time an aged and infirm man, from whose bladder he removed upwards of 1,000 calculi. Mr. Marshall recovered and lived several years after this operation without a return of the disorder.

During 1797 yellow fever again became epidemic in Philadelphia and Dr. Physick again was one of those who combatted this scourge, and for the second time he contracted the disease. He was desperately

ill and was attended by Dr. Dewees, who took from him during this illness 176 ounces of blood. While ill he heard the frequent inquiry of a stout blacksmith, who lived nearby, addressed to his black waiter-man, "Is your master dead yet?", to which the reply was invariably "No!" When the doctor had recovered sufficiently to leave the house, he inquired for the blacksmith and found that he had succumbed to the epidemic. His recovery from this attack was very slow and, in order to recuperate from the effects of his illness, he repaired to the farm of his brother situated on the banks of the Susquehanna River in Cecil County, Maryland, where he gradually regained his health. After the death of his brother he purchased this farm and was accustomed to spend a part of each summer on it.

In 1798 yellow fever was again epidemic in the city, and we find the doctor again called to be the Resident Physician at the Bush Hill Hospital. He served so skillfully and acceptably that after the subsidence of the epidemic he was presented with some valuable silver plate, which cost upwards of \$1,000, and which bore this inscription, "From the Board of Managers of the Marine and City Hospitals to Philip Syng Physick, M.D. This mark of their respectful approbation of his voluntary and inestimable services as Resident Physician at the City Hospital, in the calamity of 1798." From his extensive experience in the treatment of yellow fever, he acquired some definite views in regard to its pathology, which were expressed in a paper published in the *Medical Repository*, Vol. V, entitled "Some Observations on Black Vomit." He believed that the black vomit was the result of a secretion from the inflamed vessels of the stomach and intestines and was not due either to a changed bile or to gangrene of the mucuous membrane of the stomach. In support of this view, he adduced the results of his post-mortem examinations, of which he made many. Notwithstanding his fondness for making autopsies, he gave very strict directions that none was to be performed on his own body and that no one should touch him but two female domestics. He was not to be taken from his bed for some time but was to be kept well wrapped up in a warm room until putrefaction was evident. He was then to be placed in a wooden coffin on a mattress and this coffin was to be placed in a leaden one and soldered securely. Outside of which there was still another coffin covered with black cloth. His wishes were carried out and I suppose his remains have been untouched until now.

In the year 1800 he contracted a marriage with Miss Elizabeth Emlen, a gifted lady and a member of a distinguished family. By

this union he became the progenitor of two sons and two daughters. One of these daughters married my great uncle, Dr. Jacob Randolph, subsequently Professor of Clinical Surgery in the University of Pennsylvania, from whose memoir of Dr. Physick I am largely quoting. In this same year he was asked by a number of gentlemen, engaged in attending lectures at the University of Pennsylvania, to give them a course of lectures on surgery, among whom was Nathaniel Chapman, who at a later date became the distinguished Professor of the Theory and Practice of Medicine in the same institution. Dr. Benjamin Rush, who was at that time the most illustrious member of the profession in the city, if indeed, he was not the most celebrated physician in the whole country, also attended some of these lectures and gave his word of approval of the course to Dr. Physick.

This was the starting point of his career as a teacher of surgery, as in 1805 a special chair of surgery was established and he was elected the first professor of this branch in the University. He held this chair until 1819, when the chair of anatomy was made vacant through the death of his nephew, Dr. John Syng Dorsey, and the authorities of the University, wishing to secure the services of Dr. William Gibson, who was Professor of Surgery in the University of Maryland, persuaded Dr. Physick to exchange his chair for that of anatomy. This change in his connection with the Medical School was entirely contrary to his wishes and was only acceded to in the interest of harmony. He lectured on anatomy until 1831, when in consequence of declining health, he resigned his active connection with the University and accepted the title of Emeritus Professor of Surgery and Anatomy.

In the winter of 1813 and 14 he was afflicted with a severe attack of typhoid fever which left him with a weakened constitution thereafter. His heart eventually became involved, and towards the end of his life dropsical effusions added to his distress. He was also a sufferer from renal calculi but the concretions passed through the ureter in the course of time and were expelled. Notwithstanding these handicaps, he continued his active work until near the time of his decease. He was one of the earliest users of animal ligatures in tying blood vessels, and considered himself to have been the first to employ this method, but he subsequently discovered that the idea of using ligatures from animal fibre had been suggested by one of the older surgeons at an earlier date. He devised new operations and improved old ones, and he invented instruments to meet special in-

dications and apparatus for the treatment of diseases of the joints. But with all his skill and learning, he was still a firm believer in the efficacy of antiphlogistic measures; and, in the treatment of hip disease, he combined fixation with the prosecution of active and long continued purging.

It is unfortunate that he contributed but little to medical literature, and that he even requested that none of his lectures or letters should be made public after his death. His immense reputation was due to the excellence of his work and to the advertisement of his patients and students.

His nephew, John Syng Dorsey, published a work in 1813 entitled *Elements of Surgery*, which passed through several editions, in which the views and methods of Physick are extensively quoted. Dr. Dorsey expressed his obligation to his uncle in the following terms: "I believe there will be found in the following work many observations of practical importance which are not contained in any other. These I principally owe to my connection with Dr. Physick, and a careful attention to his practice during a period of fifteen years." This book had a large circulation, the last edition of which was published after the death of the author under the editorship of my great uncle, Dr. Jacob Randolph, in 1823.

Like his teacher, John Hunter, Dr. Physick read but little and had only a limited acquaintance with medical literature. He relied upon his own experience and observation and had but little confidence in the opinion of others.

Amongst the host of patients who consulted him was Stephen Girard, the benefactor, who founded Girard College in Philadelphia, who conceived a lasting friendship for him; and while he had a strong prejudice against physicians in general, he consulted Dr. Physick when he was ill himself. He was a moderate charger and in the case of Chief Justice Marshall, who was a wealthy man, he refused to accept a fee. Upon one occasion a gentleman who was solicitous about his wife consulted Dr. Physick and upon leaving placed a roll of bank notes in his hand. The doctor put the money in his pocket without looking at it, but when he examined the roll he found it to be \$200. He sent a messenger after the gentleman, who came back, and Dr. Physick asked him if he knew how much he had given him. He replied, "Yes, I gave you \$200." The doctor then asked him if he had two \$10 notes in his pockets, and upon receiving an affirma-

tive reply, he requested him to give him the amount asked for and handed the \$200 back to him with the statement that \$20 was enough. Notwithstanding his scrupulousness about his fees, when he died he left an estate of more than half a million dollars, an enormous fortune in those days.

He was intolerant of opposition to his methods of treatment and on several occasions refused to continue in the care of patients who objected to his therapeutic measures. To one such individual he said, "Sir, I must have my own way or none at all. I bid you good day." To another, who was inclined to be refractory at being tapped for hydrocele, he said, "Sir, I'll have none of this; down with your pantaloons; I know perfectly what I am about." His order was obeyed, and he operated on and cured the man. He was a taciturn person and but seldom smiled and had no habits of conviviality. He seldom left the city and then, usually, only on urgent professional calls. Although he had spent several years in England and Scotland in obtaining his professional education, he never revisited these countries. His skill and attainments were, however, recognized abroad, as in 1825 he was made a member of the Royal Academy of Medicine of France, being, it is supposed, the first American to receive this honor; and in 1836 he was elected an honorary Fellow of the Royal Medical and Chirurgical Society of London, a distinction which caused him great gratification.

In his own city also, among many other honorable positions that he held was that of President of the Philadelphia Medical Society, of which he was the incumbent from 1824 until his death in 1837. His personal characteristics are described by Samuel D. Gross in the following terms: He was "a cold, dyspeptic, pessimistic, unsociable man. Strikingly erect and handsome but pallid, his face was as if chiseled out of marble, the eyes black, his hair black and worn in a queue." His son-in-law, Dr. Randolph, gives a more pleasing account of his appearance and attributes. He says, "His personal appearance was commanding in the extreme. He was of medium height; his countenance was noble and expressive; he had a large Roman nose; his mouth was beautifully formed, the lips somewhat thin, and he had a high forehead and a fine hazel eye, which was keen and penetrating. The expression of his countenance was grave and dignified, yet often inclined to melancholy, more especially when he was engaged in deep thought or in performing an important and critical operation. Dr. Physick rarely indulged in excessive mirth; he was,

however, far from being insensible to playful humor and on such occasions his countenance would be lighted up with a benign smile, which altered entirely the whole expression of his features. His manners and address were exceedingly dignified, yet polished and affable in the extreme; and when he was engaged in attendance upon a critical case, or in a surgical operation, there was a degree of tenderness, and at the same time, a confidence in his manner which could not fail to soothe the feelings and allay the fears of the most timid and sensitive."

In corroboration of the sentiments contained in the last paragraph, just quoted, we find the following poem dedicated to P.S.P., MD., which appeared in the American Daily Advertiser some years before the doctor's death, the writer of which is unknown:

"Hope of the wretched! to thy healing art
 In tears of thanks and praise a stranger bends,
 And with the transports of a grateful heart,
 Hails thee his kindest, dearest, first of friends.

All that he feels, thou knowest not—nor can know;
 Yet mid thy thousands, rescued from the grave,
 Bethink thee of one victim—sinking slow,
 The best and loveliest, Heaven and thee could save.

Her's was a deep, strange malady, that wore
 Body and Soul, and hope and life away,
 As if the heart, consuming at its core,
 Perished in sad and inscrutable decay.

Thou didst restore her! God and thou alone!
 And one who watched her couch in mute despair,
 And held her life much dearer than his own,
 Pours out to Heaven for thee his fervent prayer.

Him thou forgettest—but must remember her—
 The pure, the calm, the beautiful, the mild.
 Aye! even now, her name thy pulse would stir
 For thou didst love and soothe, and call her child!

They say thou art cold—unlike to other men;
 A snow-crowned peak of science, towering high
 Above the hearts warm, soft, sequestered glen,
 As flashing sunset glories on the sky.

Who say so know thee not—nor can discern
 Beneath thy sage, professional disguise,
 How deep the feelings he, whom they call stern,
 Hides from dull heads, hard hearts or careless eyes."

Dr. Physick's home was a large, handsome double house on Fourth Street near Spruce, in Philadelphia, which is still owned and occupied by a member of the family. When I was in the city recently I viewed the building and it looked rather dilapidated, and the neighborhood, instead of being the rendezvous of the elegant and fashionable citizens of former days, had degenerated into a street of shabby shops and small trades. It was in this house that Dr. Physick died, after suffering for a long time with dropsy and anasarca, evidently due to a diseased condition of the heart, on December 15, 1837, in the seventieth year of his age. In accordance with his wish, his body was kept until evidences of decomposition had set in and his funeral did not take place until December 21st, when he was interred in the graveyard of Christ Church, situated at the corner of Fifth and Arch Streets. The funeral procession was an immense cortege, consisting of many of the most prominent citizens of the city and state and which is said to have extended almost from his home to the church.

Dr. William E. Horner, in a necrological address, epitomises the career of the deceased surgeon in the following words: "Thus ended on earth the pilgrimage of one who had occupied a larger and more intense attention of the public than any other who had practiced surgery in this country; an individual who, by general acquiescence and unanimous testimony, was hailed as the father of American surgery; one who by his intrepidity, his skill, and his success made it keep pace on this side of the Atlantic with the immense progress that it was making on the other; and who was probably unsurpassed anywhere in the curative department of his art."



ANCIENT COIN BEARING THE HEAD OF HIPPOCRATES

BULLETIN

OF THE

SCHOOL OF MEDICINE UNIVERSITY OF MARYLAND

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DOCTOR C. HAMPSON JONES

Doctor C. Hampson Jones, Commissioner of Health of Baltimore City, and a member of the Maryland State Board of Health, distinguished as a pioneer and leader in public health, died in Baltimore on Monday, April 11, 1932.

Born in Baltimore, Maryland, December 11, 1858, the son of Isaac Solomon and Mary Ann (Hampson) Jones, Doctor Jones received his early education in Baltimore, attending Friends Elementary School from 1868 to 1875. He later took special courses in biology, chemistry and physics at Johns Hopkins University from 1873 to 1879. During the latter part of 1879 he entered the University of Edinburgh, Scotland, where he remained for four years. While at the University of Edinburgh, he served for a time as assistant demonstrator in anatomy. Returning to Baltimore in 1883, he began the general practice of medicine. From 1884 to 1887 he was professor of physiology at the Women's Medical College in Baltimore. From 1889 to 1895 he was instructor in histology at the College of Physicians and Surgeons; professor of obstetrics from 1895 to 1898; professor of hygiene and preventive medicine, at the University of Maryland School of Medicine and the College of Physicians and Surgeons, from 1898 until his death. From 1919 until his death, he held the post of lecturer on public health at the School of Hygiene and Public Health of the Johns Hopkins University.



DR. C. HAMPSON JONES.

Doctor Jones joined the staff of the Baltimore City Health Department in 1896, serving two years as a Sanitary Health Inspector. In 1898, Doctor Jones was appointed Commissioner of Health of Baltimore City, serving for two years. In speaking of these two years of service, Doctor William Travis Howard, Jr., in his book on "Public Health Administration and the Natural History of Disease in Baltimore 1797-1920" says, "Doctor C. Hampson Jones succeeded to the commissionership in 1898 and brought to the office native talent and a real interest in public health administration, but unfortunately held the office but two years only, a time too short to recognize the methods and to change the attitude of the department very materially. Fortunately for the department he was retained as Assistant Commissioner from 1900 to 1915." During these years, he served under Doctor James Bosley and Doctor Nathan N. Gorter. Continuing, Doctor Howard says: "For eighteen years, 1897 to 1915, Doctor Jones was the real force in the department, and the changes in the attitude and the innovations in measures that marked this critical period were very clearly his contributions."

From 1915 to 1919, Doctor Jones was connected with the State Department of Health of Maryland, as Chief of the Bureau of Communicable Diseases.

On October 1, 1919, Doctor Jones was again appointed to the position of Commissioner of Health by Mayor William F. Broening, which position he held from that date until the time of his death, having been reappointed through successive administrations.

The change in the administration and the solution of health problems since 1896 has been tremendous. Many of them have been made possible by Doctor Jones, and there has been no public health problem in the city of Baltimore during this time that Doctor Jones has not lent his wise counsel and in many instances been the prime factor in its solution.

INSPECTION OF SCHOOLS

Inspection of schools was started in 1905 with two physicians and one trained nurse, which was increased in 1906 to five physicians and five trained nurses, with the medical inspection of school children first confined to the public schools. Doctor Jones was the guiding factor in the beginning of this service and under his supervision it was soon extended to the parochial and some of the private schools.

PUBLIC HEALTH NURSES

Under Doctor Jones' supervision the groups of nurses were amalgamated and the Bureau of Nurses was established. The first public health nurse of the department had been appointed in 1905. Four additional nurses were appointed in 1906. All five of these worked in the public schools with five school physicians. In 1910 a division of tuberculosis nurses had been created with fourteen field nurses and a superintendent. This was increased to twenty-six in 1920. During this same year the separate Bureau of Nurses was organized by Doctor Jones, amalgamating the entire nursing service into one bureau with a total force numbering eighty-three.

TYPHOID SURVEYS

The first study of typhoid fever was undertaken by Doctor Jones in 1899. During the next decade he pointed out that the disease was rather evenly distributed throughout the city, and that though milk infection, infection from polluted wells, contact with previous cases in household, infection out of the city and spread of the disease by flies all played a part, the great bulk of the cases was infected by the city water supply. By 1910, due to the epidemiological inquiry of Doctor Jones and the investigation of Doctor Stokes, City Bacteriologist, and of Doctor W. W. Ford of the Department of Pathology and Bacteriology of the Johns Hopkins Medical School, it was generally recognized that the general water supply was the chief means by which typhoid fever was spread in Baltimore. The first step in purification of the city water was chemical treatment and was started in 1911. Filtration was added in 1915 and was brought about largely through the efforts of Doctor Jones.

Ten years prior to the building of the first Sydenham Hospital for infectious diseases, Doctor Jones recommended and worked for the erection of such an institution. In his annual report in 1909 he made the following statement: "The need for such a hospital has been shown and all that is now necessary is to build it. I earnestly recommend an appropriation of not less than \$100,000 and the appointment of a special commission of competent citizens to adopt plans and construct such a building as will meet the requirements of modern treatment of infectious diseases." The present Sydenham Hospital stands as a monument to Doctor Jones' years of labor in the effort to secure for Baltimore a modern and well-equipped hospital for contagious diseases.

TUBERCULOSIS

Doctor Jones has been intensely interested and personally has taken an active part in the organized campaign against tuberculosis not only in Baltimore City but in the State of Maryland. Prior to the organization of the Maryland Tuberculosis Association, as well as the National Tuberculosis Association, Doctor Jones made a number of statistical and topographical studies on pulmonary tuberculosis in Baltimore. This was between 1900 and 1904. The Maryland Tuberculosis Association and the National Tuberculosis Association were organized in 1904. Doctor Jones collaborated actively with the Tuberculosis Commission authorized by the legislature in 1902, and contributed largely to the success of a tuberculosis exhibit. Under the general supervision of Doctor Jones who was then Assistant Commissioner, a division of tuberculosis nurses was established in the Health Department on January 1, 1910, which was later amalgamated with the Bureau of Nurses.

Doctor Jones took an active part in the organization of the Maryland Tuberculosis Association and for many years has been its Vice-President and a member of the Executive Board.

WATER SUPPLY

Looked upon as the greatest achievement of his career was his long fight for a pure water supply for the city. Coupled with this crusade were his campaigns for a modern sewerage system, and later for a pure milk supply, the latter attaining fruition in 1918, by which time ninety-eight per cent of the milk sold here was pasteurized.

Dr. Thomas S. Cullen, one of Dr. Jones' most intimate friends, said in part:

"He labored early and late, and literally wore himself out in order that Baltimoreans might be safe-guarded from disease. His desire to die while in harness was fulfilled.

"This generation will always remember with a feeling of pleasure and affection the genial countenance of Doctor C. Hampson Jones, who did so much for each and all of us. He was a great asset to Baltimore. He will be sorely missed."

For more than two decades Dr. C. Hampson Jones represented in the minds of the people of Baltimore a high standard of public service and sincere devotion to the work of protecting the health of the community. He was intolerant of political interference in the task with

which he was intrusted, and thus it came about that the public insisted that no change of administration in the City Hall should be permitted to affect Dr. Jones' position.

As a result, Dr. Jones had the satisfaction, during his direction of the Health Department, of seeing the city's death rate decline to a figure that made it no longer stand out in tables of vital statistics as the symbol of a backward and negligent community. It would be difficult to exaggerate the value of such a service as Dr. Jones' in the prevention of disease, in checking the spread of contagion, in better hospitalization of the sick, in salvage of human life and in building up on a scientific, nonpartisan and efficient basis an organization upon which the community can depend to safeguard its most vital interest—public health. His was a useful, a noble career.

In accordance with the State law, his appointment as Commissioner of Health of Baltimore City made him, exofficio, a member of the State Board of Health, where his wide experience and sound judgment made his service of outstanding value.

He was actively identified with the State Medical Society—the Medical and Chirurgical Faculty, the Baltimore City Medical Society; the State and National Tuberculosis Associations, the American Medical Association, the American Public Health Association, and the American Association for Advancement of Science; he also was a member of the West Baltimore Medical Society.

THE ONE HUNDRED AND TWENTY-FIFTH COMMENCEMENT OF THE UNIVERSITY OF MARYLAND

The One Hundred and Twenty-fifth Annual Commencement of the University of Maryland was held at College Park, Maryland, June 4, 1932. Seven hundred and twenty men and women were graduated from the various schools and colleges composing the institution. This was the first time in the history of the present University that its associated units have held graduation exercises in common on the property of the school. The academic procession was a truly inspiring spectacle, and the 5000 spectators could not help but be impressed with the magnitude of the work being done for education by this venerable school. Now that the ice has been broken, many have expressed the wish that the practice be made an annual custom. Certainly one grand commencement is more impressive and makes a better impression on the public than a number of individual exercises spread over the universe.

Dr. John H. Finley, former Commissioner of Education of New York State, and at present associate editor of the New York Times made the principal address. He spoke on Vocations and Avocations, stressing that the right use of leisure is the chief end of education and that the peril is that one will let his interest shrink to the bounds of his vocation. He urged the graduate to enlist in the avocational school which never lets out. Most of us waste enough leisure time, he said, to make ourselves musicians, artists, scholars, poets or what we will.

Dr. William H. Welch, the dean of the American Medical profession, world renowned pathologist and director emeritus of the Johns Hopkins University Institute of the History of Medicine, gave an interesting account of the University of Maryland School of Medicine.

His excellency, Albert C. Ritchie, Governor of Maryland, extended greetings to the audience.

Honorary degrees of Doctor of Science were conferred on Dr. William H. Welch, Dr. Harry Friedenwald, professor emeritus of ophthalmology, University of Maryland and Albert Fred Woods, D. Agr., director of scientific work, United States Department of Agriculture, and former president of the University of Maryland, and of Doctor of Laws on Douglas Huntley Gordon, president of St. John's College, Annapolis, Md.

The graduates in medicine were:

Mortimer D. Abrashkin.....	Connecticut
Carl Richard Ahroon, Jr.....	Maryland
Leon Ashman.....	Maryland
Charles Raymond Bell, Jr.,.....	Pennsylvania
James Russell Bell.....	Pennsylvania
Nathan Bercovitz.....	New York
Herbert Berger.....	New York
Samuel Daniel Blum.....	New York
Daniel E. Bogorad.....	Maryland
William Edward Brown.....	California
Jacob Byer.....	New York
Martin L. Cannon.....	Ohio
Hyman Chimacoff.....	New Jersey
David Stanford Clayman.....	Maryland
Anthony Daniel Crecca.....	New Jersey
Dwight Melver Currie, North Carolina	
Carroll Kalman Davis.....	New York
Salvatore Demarco, Jr.....	Maryland
Joseph George Diamond.....	New Jersey
John Charles Dumler.....	Maryland
Herbert Eichert.....	Maryland
William Henry Eisenbrandt.....	Maryland
Jack Fein.....	New York
Elliot Fishbein.....	New Jersey
Charles Flom.....	Maryland
Andrew Menaris France.....	Maryland
S. Evans Ganz.....	New York
Samuel Geller.....	New Jersey
David A. Gershenson.....	Maryland

Solomon E. Gittleman.....	New York
Albert Julius Glass.....	Maryland
Albert Gerson Gluckman.....	Delaware
Harold Gorenberg.....	New Jersey
Joseph Walter Grosh.....	Pennsylvania
Joseph Edwin Hall.....	West Virginia
David Halperin.....	New Jersey
Frank Mull Hammell.....	New Jersey
Irvin Hantman.....	Maryland
Jacob Harris.....	New York
Manes Scheuer Hecht.....	Maryland
Hyman Bernard Hendler.....	Maryland
Harry Clay Hull.....	Maryland
Meyer William Jacobson.....	Maryland
Abraham N. Kaplan.....	New York
Arthur Karfgin.....	Maryland
Abraham Katz.....	New York
Leonard Katz.....	Maryland
Lawrence Katzenstein.....	Maryland
Sylvan Keiser.....	New York
Henriette R. Klein.....	Maryland
Bernard Korostoff.....	New York
Milton Bernard Kress.....	Maryland
Alexander Allen Krieger.....	Pennsylvania
Sidney Lechner.....	New York
Jacob Leffert.....	New York
Samuel Legum.....	Maryland
George Lerner.....	New York
Samuel Lieberman.....	New York
Reuben Richard Louft.....	Maryland

Harry David Markman.....	New York	Roberto Luis Sanchez.....	Maryland
William J. McGovern.....	Pennsylvania	Thomas Sewell Saunders, Jr.,	Maryland
William Owen McMillan.....	West Virginia	John Edward Savage.....	D. C.
William Carter Mebane, Jr.,		David I. Schwartz.....	Maryland
	North Carolina	Max Herman Shack.....	New Jersey
John Hoke Mickley.....	Pennsylvania	John Jacob Shaw.....	New Jersey
Myron Joseph Miller.....	New York	Sidney Leon Siegel.....	New Jersey
John Duer Moores.....	Maryland	George Silverstein.....	Connecticut
Arthur Nachlas.....	Maryland	John Frederick Simmons.....	Maryland
Alpheus Carlton Newman, Jr.,		Jerome Snyder.....	Maryland
	Maryland	Aaron C. Sollod.....	Maryland
Richard R. Panebianco.....	New York	Arthur James Statman.....	New Jersey
Henry Robert Pear.....	Maryland	Charles Stein.....	Maryland
Arthur Jay Philip.....	New York	Frank Richard Stephenson.....	Maryland
Solomon Harris Pink.....	New Jersey	Francis Nicholson Taylor.....	Virginia
Samuel Prigal.....	New York	Harry Goff Thompson.....	Illinois
Samuel Edward Proctor.....	Maryland	Thomas Haze Tomlinson, Jr.,	
M. Murray Reckson.....	New York		North Carolina
Marion Butler Roberts.....	North Carolina	Max Evans Whicker.....	North Carolina
Jack Zeth Rohm.....	Pennsylvania	Frank Wilson, Jr.....	North Carolina
Stephen Isaiah Rosenthal.....	Pennsylvania	Carl Alexander Wirts.....	Pennsylvania
Robert Rubenstein.....	New Jersey	Howard Lester Zupnik.....	Pennsylvania
		Meyer Harry Zuravin.....	New Jersey

HONORS

University Prize Gold Medal.....Charles Raymond Bell, Jr.
 Certificates of Honor—David Stanford Clayman, John Edward Savage, Samuel Legum,
 John Charles Dumlér, Solomon E. Gittleman.

The Dr. A. Bradley Gaither Memorial prize of \$25.00 for the best work in genito-
 urinary surgery during the senior year.....John Hoke Mickley

The following young ladies received diplomas as graduate nurses:

Nellie Virginia Butler.....	West Virginia	Ella Irene Miller.....	Pennsylvania
Blanche Virginia Cameron,		Ruby Harrold Morris.....	Virginia
	West Virginia	Virginia Murdoch.....	Maryland
Gladys Leona Durst.....	Maryland	Janet Beryl Reifsnider.....	Maryland
Mary E. Emery.....	Ohio	Margaret Richards.....	Maryland
Irene Douglass Travers Gladden,		Luella M. Rodes.....	Maryland
	Maryland	Gladys Louise Rudisill.....	North Carolina
Maurice Hardin.....	South Carolina	Ruth Madeline Schaffer.....	Maryland
Eva Opal Holloway.....	Maryland	Josephine Alice Schuh.....	West Virginia
Margaret Louise Huddleston,		Arminta Eveline Taylor.....	Pennsylvania
	North Carolina	Julia Weddington Thompson,	
Virginia Lee.....	Florida		North Carolina
Mildred E. Michael.....	Maryland	Clara Evelyn Wilburn.....	Maryland
Carrie Estelle Miller.....	Pennsylvania	Mary Elizabeth Worthy.....	South Carolina

HONORS

The University of Maryland Nurses' Alumnae Association scholarship to pursue
 a course in administration, supervisory, or public health work at Teachers
 College, Columbia University, to the student having the highest record in
 scholarship.....Luella Mildred Rodes
 The Elizabeth Collins Lee prize of \$50.00 to the student having the second
 highest average in scholarship.....Virginia Lee
 The Mrs. John L. Whitehurst prize of \$25.00 for the highest average in executive
 ability.....Luella Mildred Rodes
 The Edwin and Leander M. Zimmerman prize of \$50.00 for practical nursing and
 for displaying the greatest interest and sympathy for the patients,
 Luella Mildred Rodes
 The University of Maryland Nurses' Alumnae Association pin, and membership
 in the Association, for practical nursing and executive ability,
 Mary Elizabeth Emery

PROCEEDINGS

OF THE

UNIVERSITY OF MARYLAND BIOLOGICAL SOCIETY

*Officers of the Society*HARVEY G. BECK, *President*JOHN C. KRANTZ, JR., *Secretary*O. G. HARNE, *Treasurer*C. O. APPLEMAN, W. H. SCHULTZ, EDUARD UHLENHUTH, C. C. PLITT, *Councillors*

The Thirty-sixth Program Meeting of the University of Maryland Biological Society was held Tuesday, March 1, at 8.30 P. M. in the Chemical Amphitheatre of the University of Maryland. The meeting was presided over by the President, Dr. Harvey G. Beck.

The first paper presented to the meeting was "Experimental Work in Scalenotomy," by Thomas B. Aycock, M.D. The second paper presented to the meeting was "The Effect of the Growth Hormone on the Early Growth Period of Albino Rats," by Hyman Rubinstein, Ph.G., M.D. An abstract of Dr. Rubinstein's paper is herewith appended:

THE EFFECT OF THE GROWTH HORMONE ON THE EARLY
GROWTH PERIOD OF ALBINO RATS

BY HYMAN RUBINSTEIN, PH.G., M.D.

BALTIMORE, MD.

The effect of alkaline extract of the anterior lobe of beef pituitary glands (growth hormone) was studied upon the early growth period of the male and female albino (*Mus Norwegicus albinus*) rat. This extract was administered by intraperitoneal injection in 2 c.c. doses every day except Sunday and the growth curves studied. At varying intervals in different groups, the number of injections were decreased to 2 per week. Analysis of results disclosed the facts that:

1. Alkaline extracts of the anterior lobe of beef pituitaries properly administered produce positive growth response during the early growth period of the female albino rat. The result in the male appears negative.
2. Failure to get definite growth results in the female may be attributed to faulty preparation or administration of the extract.
3. Weight increases subsequent to hormone injection for short periods are promptly lost upon cessation of administration.
4. The rate of body growth in the rat seems to be predestined.

The Thirty-seventh Program Meeting of the University of Maryland Biological Society was held Tuesday, March 22, at 8 P. M. Prior to the meeting, several of the Baltimore members went to College Park and joined with the members of the Society at College Park at a dinner given in the University Dining Hall at College Park. At 8 P. M. the members assembled in the Hall of the Chemistry Building to hear the papers presented at the Program Meeting.

The first paper presented to the meeting was "Cytology of Sterility in Hybrids," by Ronald Bamford, Ph. D., from the Department of Botany, University of Maryland, College Park, Maryland. The second paper presented to the meeting was "Distribution of the Circulation of the Dog's Lung," by Cyrus F. Horine, M.D., Associate in Surgery, Medical School, University of Maryland, Baltimore, Maryland. Abstracts of these papers follow:

THE CYTOLOGY OF STERILE PLANT HYBRIDS

BY RONALD BAMFORD, PH.D.

COLLEGE PARK, MD.

This study was concerned with two sterile F_1 violet species hybrids produced as the result of cross-pollination experiments between two related species. Though they displayed remarkable vegetative vigor sexual reproduction was impossible because of the abnormal processes in the production of gametes. These abnormal processes were demonstrated by irregular behavior of the chromosomes during the meiotic divisions. After fertilization the two foreign plasmas apparently exist in perfect harmony but the critical stage is reached when they are to be sorted out for distribution to the gametes. Gametic sterility is the result.

DISTRIBUTION OF CIRCULATION IN DOG'S LUNG

BY CYRUS F. HORINE, M.D.

BALTIMORE, MD.

This paper dealt with a method used in making injections of the pulmonary and bronchial artery systems. Injections were made in the living animal, without producing a pneumothorax. It was demonstrated by this method that the bronchial artery capillaries anastomose with the pulmonary vein capillaries. This confirms the work of William Snow Miller. The visceral pleura receives blood from the systemic arterial system. These experiments will be published in detail within the near future in the Journal of Thoracic Surgery.

The following abstracts are of the papers given before a meeting of the University of Maryland Biological Society, held May 19th, 8.30 P. M. in the Chemical Amphitheatre of the Medical School.

THE GOLGI APPARATUS IN THE SECRETORY PROCESS OF THE THYROID GLAND

BY EDUARD UHLENHUTH, PH.D.

BALTIMORE, MD.

Larval and adult forms of salamanders are injected with an extract of anterior hypophysis; controls are injected with either Ringer or Muscle extract.

The thyroids are fixed and impregnated with osmic acid according to Kolatschev and Nassanow.

In the resting thyroid cells of the control animals the Golgi apparatus occupies an apical position. In the thyroid-cells of the anterior-lobe injected animals, although they have been stimulated to a maximum degree of activity and excrete both at the apical and basal ends, the Golgi apparatus again is located at the apical ends.

Conclusions:

1. Excretion through the basal cell end is possible even when the Golgi apparatus lies at the apical end.
2. The Golgi apparatus can not be considered an indicator of the secretory polarity of the cell.
3. The Golgi apparatus may be the secretory organ of the cell, but its position has nothing to do with excretion.
4. The distribution of the Golgi apparatus follows the distribution of the cytoplasm.

A POTENTIOMETRIC AND "GLYCEM-METRIC" STUDY OF CERTAIN AMINO ALCOHOLS

BY JOHN C. KRANTZ, JR., PH.D. AND WALTER H. HARTUNG

BALTIMORE, MD.

The hydrogen-ion concentration of the hydrochlorides of certain homologues of ephedrine was determined. The degrees of hydrolysis have been calculated. The hydrochlorides of phenylethanolamine and diphenylethanolamine exhibit a higher hydrogen-ion concentration than the hydrochlorides of those amines having a greater number of carbon atoms in the side chain. No marked relationship between the physical measurements determined and the pharmacological behavior of these amino alcohols was observed. The action of phenylpropanolamine hydrochloride of ephedrine and other related compounds on the blood sugar level of rabbits was studied intravenously, subcutaneously and orally. The action of certain homologues of phenylpropanolamine has been studied intravenously as far as their glycemic activity was concerned.

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The names listed above are our officers for the term beginning July 1, 1932, and ending June 30, 1933.

ANNUAL REPORT OF THE SECRETARY

As retiring Secretary of the University of Maryland Medical Alumni Association, I wish first to welcome you to this annual meeting. Your presence signifies your interest in and loyalty to your Alma Mater. Those who are not here, whether it is because they could not or because they do not have sufficient interest, I feel is our misfortune.

I realize that any one who serves as Secretary of an organization such as this is subject to criticism, both openly and secretly. I have only one feeling in this regard and that is that I have endeavored to do my work as best I could, but have no doubt others could have accomplished more during the past year; nevertheless I am glad to have been able to serve you.

I shall make only brief reference to the world-wide economic decline that we have witnessed since 1929 by saying that this organization, like all such organizations, has suffered its losses. Having necessarily been forced to experience its hardships, we have failed to

make the progress we anticipated one year ago. On the other hand, I am glad to be able to report to you that we are financially in better condition now than then and I feel, unless some unexpected reverses are encountered, we will be able to weather the storm through which we have partially passed.

I cannot begin to express to you the sacrifice that the foregoing statement has entailed in reference to work on the part of your committee. The unselfish spirit manifested among this group has been nothing short of phenomenal. All selfish feeling was either laid aside or suppressed and they have worked as a single unit in an effort to promote the best interests of the organization. To them you owe a debt of gratitude, and I, for one, wish, therefore, to express my sincerest and profoundest gratitude for their active support. Had it not been for this untiring interest and diligent work on their part during the last two years you would have been forced to reorganize either one year ago or this year.

The interest among some of our graduates has been sorely lacking for one reason or another. Just what will reawaken this interest, I am at a loss to say. Certainly our school has more to offer both to its graduates and students than it has had at any time within its history. Our connection with the State University at College Park, the success and progress made within our own departments in all the branches of both medicine and surgery within recent years, cannot help but be a source of gratification to all of us. Of course, you, as loyal alumni, do not want your school to stand still. On the contrary, you want to see its pace doubled in order that it may become a greater and more efficient help to the state and nation. Please be assured, however, it is by your united efforts that this can be made possible.

With your indulgence, let me mention briefly a few of the responsibilities that have already or should be shouldered by our University. All universities, because of their purpose of well being, have the responsibility of helping to build a world in which the call of idealism of our people shall never again be forced to face a situation such as is now thrust upon them. It is the duty of all universities, both collectively and individually, to make realistically intelligent and morally heroic the aspirations of the work of the human race toward a sane world, vivid with the unlimited possibilities of cooperative work, valorous with the unlimited possibilities of physical and social mastery, and filled with the attributes of the human spirit.

These are the high standards on which our university stands. The backbone of all universities is that of the College of Liberal Arts. It has been for years subjected to criticisms and reorganizations because of the encroachments of professional and vocational schools. I believe that the College of Arts and Sciences is the foundation for the professional and graduate schools and that the purpose of all of them should be directed toward the development of the better human being; namely, to equip a human being to understand his finer self and thereby enable him to play his useful and cooperative part. The liberal college must develop the whole personality. It is well known that damage to certain areas of the central nervous system impairs the intellectual capacity. Likewise, deficiency in training of the same system accomplishes, in less measure perhaps, the same result. It is my belief that a University is or should be a place where you, I, or anyone else, that has the preliminary training to comprehend, can study or investigate anything that will give depth and breadth to the mind and also develop the spiritual values of the human personality. After securing such an education we should then be able, and not until then, to direct our studies to some specialized field. Certainly an integrate view of the many cells that make up our bodies and the influences that enter into the making of our character, lives and philosophy that is embodied in the curriculum of the College of Liberal Arts and Sciences is essential to a student's understanding of himself, and the problems of the world today as well as to an intelligent view of the universe.

To meet the demands and play a part in the world's life there arose outside the universities the professional and vocational schools. Our own school arose outside the present university, of which it is now a part, one hundred and twenty-five years ago. In this instance, as in many others, as the profession became so complex, proprietary schools of medicine arose throughout the country to fill a need. Now all universities need the professional schools of law, medicine, pharmacy, dentistry and business, with their specialized knowledge, equipment and skill, standard of scholarship, spirit of work, and they should be working harmoniously one with the other. While we may have departments of subjects, there is no excuse for us having compartments of knowledge with a lack of communication and an exchange of ideas between them. Likewise, the professional schools properly assimilated in the units of a university need the variety of skill and contact with the other departments of the same institution. The

professional schools in all institutions need be concerned with the broad and comprehensive training of the department heads and their subordinates. Every instructor, however small his place, is in a position to carry on the necessary culture and broader view. Our school of medicine, like all similar schools, should bear this in mind. It is true there are some great teachers in this and similar schools who have never entered a college but have acquired a culture and broad view of the enviable sort and are now working harmoniously towards the goal of the university of modern trend and thought.

I believe that, in addition to our professional schools giving degrees, there should also be more extensive graduate and research departments. Research is a resource of the great teacher. He is filled with humility and by virtue of his own efforts there is enthusiasm carried on to the students and the combined efforts of the two groups develop the scholarly attitude in many students.. In this way, there results an interchange of ideas throughout the countries of the earth and truth is spread of benefit to the human race.

THOMAS B. AYCOCK, M. D.,
Secretary.

THE SPRING ACTIVITIES

The Spring Activities held on June 3rd and 4th are now a memory. For the first time in the history of the institution, the physical equipment at College Park was adequate to take care of the graduation exercises of the academic and of the professional schools. The Medical School added color to the occasion by celebrating its One Hundred and Twenty-fifth Anniversary. Every alumnus whose address could be ascertained was invited to be present. Fifty-five hundred letters were mailed to former graduates. Reunions were held by all of the classes since 1876. In a time like this, when all of us have limited means, the attendance was most gratifying to the committee in charge of arrangements.

The celebration began with registration of the alumni and an impromptu talk by Dr. Randolph Winslow to the class of 1888.

At 12.30 p. m. a seated luncheon was given to our guests at the Hotel Rennert, a hostelry celebrated for its famous cuisine. Approximately 200 were served, all of whom seemed to enjoy meeting their former class-mates and friends.

Immediately following the luncheon, the Alumni Association held its annual meeting. Dr. A. E. Goldstein, the retiring-president, made a short address. For want of time, the annual reports of all committees were dispensed with except that of the Advisory Committee, whose Chairman, Dr. W. H. Triplett, recommended the following nominees as officers of the Association for the year 1932-1933: President—Dr. Charles R. Foutz; First Vice-President—Dr. J. K. B. E. Seegar; Second Vice-President—Dr. Wm. A. McMillan; Third Vice-President—Dr. Raymond Hussey; Secretary—Dr. Kenneth B. Boyd; Assistant Secretary—Dr. Frank K. Morris; Treasurer—Dr. D. J. Pessagno; Members of the Board of Directors—Dr. A. E. Goldstein (Chairman), Drs. John Evans, W. Houston Toulson, T. B. Aycock and Charles R. Edwards; Advisory Committee—Dr. W. H. Triplett (Chairman), Drs. Salvatore Demarco, A. Ferd Ries, Edgar B. Friedenwald, Frank S. Lynn; Library Committee—Dr. Nathan Winslow; Trustees' Students' Rotating Fund—Dr. William S. Love (Chairman), Drs. Charles E. Brack, Frank J. Kirby, Robert L. Mitchell and G. Milton Linthicum; Editors—Drs. Emil Novak and E. S. Johnson; Hospital Council—Drs. C. C. Habliston and Charles Bagley, Jr.; Alumni Council—Dr. Cyrus F. Horine. Dr. Edgar Friedenwald moved that the nominations be closed and the Secretary cast the ballot for the nominees. This motion was duly seconded and passed, and the ticket was declared elected as read. There being no further business before the Association, the meeting adjourned.

The guests then returned to the Administration Building to attend the clinics of Dr. Raymond Hussey, Professor of Pathology of Yale University, on Coronary Thrombosis, and Major Norman T. Kirk of the Walter Reed Hospital on Some Phases of Amputation. We were indeed fortunate to have these two distinguished alumni with us. Chemical Hall was filled to capacity and the audience seemed to enjoy the remarks of both speakers.

After the clinics an intermission was declared until 7 p. m., at which time over 500 alumni gathered at the Lord Baltimore Hotel for the annual dinner. A number of guests from College Park were present. Dr. R. A. Pearson, Dr. Randolph Winslow, Mr. George Shriver, Mr. William N. Davidge, great-grandson of the founder of the University of Maryland, his son and grandson, William C. Davidge and Davidge C. Rowland, respectively, and the members of the graduating class of the School of Medicine were honored

guests. Mayor Howard W. Jackson was unable to be present because of sickness in his family. A delightful menu was served. Dr. Pearson gave a short address. Other speakers were Drs. Randolph Winslow, J. M. H. Rowland, Wilmer Brinton, T. B. Symons and Mr. John E. Savage of the senior class.

The spirit manifested throughout the entire day and the evidence of good fellowship was a source of gratification to your committee.

The following day a number of the Medical Alumni visited College Park. The day's program follows: 9 o'clock, registration of the alumni at the Agricultural Building; 10 a. m., the annual meeting of the College Park Alumni Association in the College Auditorium; 12:30 p. m., luncheon in the University Dining Hall. A number of Medical Alumni did not attend either the luncheon or the annual meeting, but spent this time inspecting the attractive buildings and beautiful campus. At 3 p. m. the Bi-Centennial Tablet on Rossburg Inn was unveiled by the John Eager Howard Chapter, Daughters of the American Revolution. At 4 p. m. the commencement exercises for the graduates of the entire University were held in the Ritchie Coliseum. This much needed building has been opened since our last annual meeting. The speakers at the Commencement exercises were: His Excellency Albert C. Ritchie, Governor of Maryland, and Dr. Wm. H. Welch, Director Emeritus of the School of Hygiene and Public Health of the Johns Hopkins University, who spoke on the One Hundred and Twenty-fifth Anniversary of the School of Medicine of the University of Maryland. The address to the graduating class was delivered by Dr. John H. Finley, associate editor of the New York Times. Seven hundred and twenty graduates received diplomas from the different departments of the University; of these, one hundred and two were awarded the degree of Doctor of Medicine.

The Board of Regents, the President of the University, the Faculty of Physic, and the Board of Directors of the Alumni Association School of Medicine desire to express through the Bulletin their deepest appreciation to the visiting alumni for their enthusiastic cooperation and support. We sincerely trust that everybody enjoyed these activities. The interest and loyalty manifested by the alumni more than compensate for the work of the Anniversary Committee. The affiliation with the College Park Departments, during the commencement exercises, has helped to cement more closely the ties of friendship and a more intimate relationship between all departments.

The following alumni were present during the activities:

Drs. R. S. Anderson, Statesville, N. C.; Henry W. McComas, Oakland, Md.; W. F. Gemmill, York, Pa.; A. B. Householder, Lovettsville, Va.; H. B. McDonnell, College Park, Md.; W. J. B. Orr, Washington, D. C.; Chas. R. Foutz, Westminster, Md.; Daniel B. Sprecher, Sykesville, Md.; J. E. Kempter, Chambersburg, Pa.; Leonard Hays, Hyattsville, Md.; Guy Steele, Cambridge, Md.; Francis Greenwell, Leonardtown, Md.; A. F. Van Bibber, Bel Air, Md.; W. N. Bispham, Washington, D. C.; Wm. L. Sheahan, New Haven, Conn.; Geo. H. Riggs, Ijamsville, Md.; E. H. Wakelee, Big Flats, N. Y.; Geo. C. Medairy, Owings Mills, Md.; Wm. A. McMillan, Charleston, W. Va.; Grover C. Sweet, New Haven, Conn.; John A. Smith, Randallstown, Md.; W. D. Campbell, Hagerstown, Md.; Paul Cohen, Frederick, Md.; L. Leo Doane, Butler, Pa.; Chas. E. Gill, Boston, Mass.; Palmer F. C. Williams, Pikesville, Md.; Morris L. Yubas, Philadelphia, Pa.; Henry A. Cotton, Trenton, N. J.; L. B. Johnson, Morganza, Md.; Otis S. Brown, Warren, Pa.; Wm. S. Seymour, Easton, Md.; Purnell F. Sappington, Bel Air, Md.; W. Howard Yeager, Hagerstown, Md.;

Frank V. Langfitt, Clarksburg, W. Va.; H. R. Black, Spartanburg, S. C.; Ernest Spencer, Bel Alton, Md.; Noble P. Barnes, Washington, D. C.; Hugh F. Cook, So. Orange, N. J.; Henry Schlesinger, Sharpsburg, Pa.; G. Carville McCormick, Sparrows Point, Md.; J. W. Hodges, Hampton, Va.; Homer S. C. Hetrick, Lewisberry, Pa.; Eldridge E. Wolff, Cambridge, Md.; J. Symington, Carthage, N. C.; Albert E. Wilson, Norfolk, Va.; T. M. McLenahan, Pittsburgh, Pa.; P. Williams, Providence, R. I.; F. D. Wilson, Norfolk, Va.; F. Garnett Cowheard, Cumberland, Md.; Chalmers M. Van Poole, Salisbury, N. C.; N. G. Wilson, Norfolk, Va.; Loren E. Cockrell, Reedville, Va.; Frank W. Smith, Chestertown, Md.; Robt. B. Bacon, Washington, D. C.; Chas. C. Tumbleson, Sandy Spring, Md.; G. A. Kobler, Smithsburg, Md.; S. W. Blazejewski, Wilkes-Barre, Pa.; W. P. Shaw, Berlin, Pa.; Remo Fabbri, Norristown, Pa.; Charles Nay, Jersey City, N. J.; Edw. R. Gookin, Washington, D. C.; R. V. Palmer, Avenue, Md.; L. Brandenburg, Union City, N. J.; S. H. O'Neill, Blue Hill, Nebr.; E. A. Allen, Atlanta, Ga.; Hugh R. Black, Spartanburg, S. C.; Arthur W. Browning, Elloree, S. C.; John H. Judkins, Northfield, Vt.; Otis B. Stone, Libertytown, Md.; S. J. Waterworth, Clearfield, Pa.; W. E. Driver, Norfolk, Va.; F. E. Knowles, Boonton, N. J.; P. D. Barlow, McMechen, W. Va.;

Geo. H. Steuart, Ottoman, Va.; Charles T. Fisher, Salisbury, Md.; Frederick V. Beitler, Relay, Md.; Morris A. Birely, Thurmont, Md.; W. E. Arthur, Cardiff, Md.; D. E. Warren, Passaic, N. J.; B. W. Fassett, Durham, N. C.; Edward Baum, Philadelphia, Pa.; John W. Wickliffe, West Union, S. C.; Geo. L. Broadrup, Cumberland, Md.; Ernest Rowland, Liberty Grove, Md.; R. C. Dodson, Rising Sun, Md.; Charles Richardson, Bel Air, Md.; G. F. Arnold, Washington, D. C.; A. W. Valentine, Washington, D. C.; R. M. McGovern, West Union, W. Va.; Asa L. Hickok, Somerset, Pa.; W. H. Dial, Laurens, S. C.; Rolfe E. Hughes, Laurens, S. C.; Marion Ulrich, Millersburg, Pa.; George L. Smith, Morrison, Va.; W. J. A. O'Hara, Bridgeport, Conn.; Albert S. Kaufman, New Kensington, Pa.; Arthur C. Lewis, Fall River, Mass.; Jas. L. Gallagher, Buffalo, N. Y.; Henry M. Fitzhugh, Westminster, Md.; Wm. J. Heffner, Long Island, New York; J. J. Jenkins, Farmington, W. Va.; L. A. Crowell, Lincolnton, N. C.; Chas. W. Famous, Street, Md.; Henry L. Stick, St. Louis, Mo.; P. J. Bean, Great Mills, Md.; W. L. Hammersley, Frankfort, Ind.; B. F. Noland, Bassetts, Va.; E. B. Noland, Bassetts, Va.; Joseph A. Ross, Trappe, Md.; Harry Hurtt, Washington, D. C.; Howard A. Long, Brickerville, Pa.; Sydney M. Cone, Pikesville, Md.; Max Greenwald, New York; Julian P. Linke, Plainfield, N. J.; Thos. B. Johnson, Indianapolis, Ind.; M. D. Norris, Sykesville, Md.; Rollin Jefferson, Tampa, Fla.; W. B. Draper, Boonsboro, Md.; H. M. Hartman, Gettysburg, Pa.; Geo. J. Howe, Central Falls, R. I.; Josiah S. Bowen, Mt. Washington, Md.; E. T. W. Hall, Weston, W. Va.; Lloyd Noland, Fairfield, Ala.; Wm. J. Todd, Mt. Washington, Md.; I. Fearing, Elizabeth City, N. C.; Geo. N. Yagle, Red Lion, Pa.; Leo. T.

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J. Wm. Funck, A. W. Reier, C. B. Ensor, E. S. Johnson, A. Hebb, Wm. R. Geraghty, Chas. Maxson, D. Pessagno, Elizabeth Sherman, Leo Brady, Frank K. Morris, Herman Voigt, John O. Davies, Arthur M. Shipley, Ernest G. Marr, Randolph Winslow, Gordon Wilson, Edw. E. Gibbons, M. Bowman Hood, J. Harry Ullrich, I. A. Siegel, James S. Akehurst, H. E. Levin, Monte Edwards, Margaret Ballard, H. I. Hammer, F. A. Holden, W. P. Dailey, L. H. Douglas, C. Loring Joslin, John R. Abercrombie, John F. Lutz, Myron Tull, Arthur G. Barrett, Eduard Uhlenhuth, J. Burch Joyce, Walter C. Merkel, W. S. Smith, S. H. Culver, Henry Walton, V. Van Williams, Edw. A. Smith, Henry B. Athey, O. G. Harne, Grover A. Stem, T. Fred Leitz, Max Kahn, Wm. Greenfeld, A. G. Rytina, J. M. Reese, Gilbert Buxton, Jos. L. Valentini, Thos Philips, Jos. L. Kemler, J. M. Hundley, Anna Kuhn, Chas. S. Parker, J. Wm. Funck, Otto Schaefer, Chas. J. Keller, Melvin S. Rosenthal, A. F. Ries, A. B. Glascock, John E. Legge, E. Kerr, Wirt A. Duvall, Howard A. Silver, W. R. Johnson, Albert J. Bossyns, J. Wesley Cole, W. H. Smith, H. E. Peterman, Henry M. Baxley, Milton P. Hill, J. W. Ebert and Walter M. Carmine, of Baltimore.

THE SENIOR MEDICAL SOCIETY OF THE UNIVERSITY OF MARYLAND

The Senior Medical Society of the University of Maryland was organized in the spring of 1931 and began to function the following autumn. The purpose of the organization was to provide an opportunity for the presentation of original papers and reviews by fourth year students, and to obtain speakers on subjects of medical interest not included in the school curriculum. Membership was open to all members of the Class of 1932.

The original officers were: Dr. L. A. M. Krause, Honorary President and Adviser; S. J. Prigal, President; T. S. Saunders, Vice-President; M. S. Hecht, Secretary; L. P. Katzenstein, Treasurer.

Six meetings were held during the past school year. At each meeting there was an invited speaker and one or more student papers were presented. The guest speakers and their topics were: Dr. L. A. M. Krause, "Some Problems of Medical Practice"; Dr. Randolph Winslow, "The History of the University of Maryland"; Dr. I. Wm. Nachlas, "Recent Developments in the Orthopedic Treatment of Rickets"; Dr. Emil Novak, "Endocrine Therapy in Gynecology"; Dr. John Ruhrah, "Pediatrics in Art"; and Dr. Leon Freedom, "Hypnotism" (demonstrated). The eleven papers presented by members covered a wide range of topics of both historical and practical interest.

The Class of 1933 has taken over the organization for the coming year, and it is expected that each senior class will carry on in turn.

MANES S. HECHT, *Secretary*.

ITEMS

Dr. Frank S. Lynn, class of 1907, is a patient in the University Hospital with a badly infected hand.

Dr. Francis O. Rogers, class of 1901, was a recent visitor to the University Hospital.

Dr. L. A. Buie, class of 1915, of the Mayo Clinic, Rochester, Minn., was awarded recently a gold medal by the Southern Minnesota Medical Society for outstanding research in medicine and surgery. Dr. Buie has just completed another book on diseases of the colon. His book that was published last June has been reprinted five times. The Bulletin extends to Dr. Buie its congratulations on the good work he is doing.

Mayor Howard W. Jackson, Baltimore, has announced the appointment of the following alumni as consultants to the Baltimore City Health Department: Arthur G. Barrett, Andrew C. Gillis, G. Milton Linthicum, Arthur J. Lomas, Maurice C. Pincoffs, James M. H. Rowland, George Walker.

Dr. FitzRandolph Winslow, class of 1906, surgeon-in-chief to the Hayden Hospital, Hayden, Arizona, has returned to his former home, Baraboo, Wisconsin.

In appreciation of his efforts for the advancement of Italians in this country, Dr. T. Richard Paganelli, P. & S., class of 1903, has been awarded the title of Cavalier by the Italian government. Dr. Pagnelli was born in San Salvo, Province of Chieti. He emigrated to America with his parents at the age of six.

Dr. Daniel B. Sprecher, Sykesville, Md., class of 1881, was given a testimonial dinner, September 10, 1931, by the Carroll County Medical Society, in honor of his completion of fifty years in the practice of medicine.

A bronze tablet bearing a relief portrait of the late Dr. William Royal Stokes, class of 1891, for 35 years city bacteriologist, and for many years professor of bacteriology at his alma mater, was recently unveiled at the City Hall Annex. It bears the following inscription:

To the memory of an able physician and bacteriologist. A lover of art, music and poetry, who died a martyr to the cause of science, contracting psittacosis (parrot fever) in line of duty

DEATHS

- DR. SIDNEY HERMAN ADLER, New York, N. Y.; class of 1907; aged 48; died, March 12, 1932, of angina pectoris.
- DR. FRANCIS MELANCTHON ARTHUR, Hamilton Square, N. J.; B. M. C., class of 1901; bank president; aged 56; died, March 5, 1932, of coronary embolism.
- DR. CHARLES ANTHONY BECK, Wilmington, Del.; class of 1900; formerly secretary of the board of health; aged 58; died, May 19, 1932, of carcinoma of the gall-bladder.
- DR. ELMER F. BROWN, Groveton, N. H.; B. M. C., class of 1897; aged 63; died, April 10, 1932, of strangulated ventral hernia and paralytic ileus.
- DR. MALCOLM L. CURRIE, Alston, Ga.; P. & S., class of 1888; aged 79; died, February 12, 1932.
- DR. JEFFERSON BOSTWICK COUNCILL, Salisbury, N. C.; P. & S., class of 1885; aged 76; died, April 21, 1932, of lymphosarcoma.
- DR. WILLIAM H. DEFORD, Des Moines, Iowa; P. & S., class of 1883; also a dentist; formerly professor of oral pathology and hygiene, College of Dentistry, State University of Iowa, professor of dental surgery and anesthetics, Drake University College of Medicine and professor of oral pathology, anesthesia and exodontia, College of Dentistry, Drake University; author of Lectures on General Anesthetics in Dentistry; member of the American Dental Association, American Association of Anesthetists; past president of the Iowa State Dental Society; ex-president of the Iowa State Board of Dental Examiners and Des Moines District Dental Society; editor Dental Record; associate editor Anesthetic Supplement New York Journal of Surgery; aged 73; died, March 22, 1932, of coronary embolism. Dr. DeFord held the following degrees, B.A., M.A., D.D.S., M.D. He was born at Centreville, Md., June 3, 1858 and died at Des Moines, Iowa, March 22, 1932. By his force, energy and ability, he made himself a useful member of his adopted city.
- DR. IRVIN EBAUGH, Baltimore, Md.; class of 1889; formerly professor of materia medica and therapeutics at the Maryland Medical College; aged 70; died, April 15, 1932, of hypertension, cardiovascular disease and pulmonary embolism.
- DR. GEORGE LASON EDWARDS, Bogota, N. J.; B. M. C., class of 1910; past president of the Bergen County Medical Society; aged 47; died, March 15, 1932, of uremia and cardiac disease.
- DR. NORMAN MCLEOD HEGGIE, Jacksonville, Fla.; class of 1902; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgery; served during the World War; aged 56; died, May 11, 1932, of coronary thrombosis and arterial hypertension.
- DR. WILLIAM DANIEL HOHMANN, Kewanee, Ill.; B. M. C., class of 1890; past president of the Henry County Medical Society; formerly health officer of Kewanee; aged 64; died, May 8, 1932, of pulmonary and intestinal tuberculosis.
- DR. JAMES LEE HOPKINS, Havre de Grace, Md.; class of 1897; aged 59; died, March 28, 1932, of lobar pneumonia.
- DR. JONAS JACOBS, New York, N. Y.; P. & S., class of 1886; aged 69; died, April 1, 1932.
- DR. WILLIAM BENNETT JEFFRIES, Citronelle, Va.; Washington University School of Medicine, class of 1876; aged 78; died, April 15, 1932, of chronic nephritis, arteriosclerosis and diabetes mellitus.



WILLIAM HARPER DEFORD, A. B., A. M., D. D. S., M. D.

Born at Centerville, Md., June 3, 1858.

Died at Des Moines, Iowa, March 22, 1932.

DR. CHARLES HAMPSON JONES, Baltimore, Md.; M. B. and C. M., University of Edinburgh, class of 1883, and M. D. honorary, P. & S., class of 1889; Professor of Hygiene and Public Health, University of Maryland; student in biology, Johns Hopkins University, 1877-1879; in business two years; Lecturer on Physiology, Woman's Medical College, Baltimore, 1886-1888; Associate Professor of Physiology, Woman's Medical College, Baltimore, 1888-1889; Associate Professor of Physiology, College of Physicians and Surgeons, Baltimore, 1889-1896; Professor of Obstetrics, College of Physicians and Surgeons, Baltimore, 1896-1898; Professor of Hygiene, Public Health and Clinical Medicine, College of Physicians and Surgeons, Baltimore, 1898-1915; Professor of Hygiene and Public Health, University of Maryland, School of Medicine, 1915-1932; since 1919, Commissioner of Health, Baltimore; President Baltimore City Medical Society in 1916; aged 73; died, April 11, 1932, of cardiac collapse following a first stage operation for prostatectomy.

Dr. Jones was born in Baltimore, December 11, 1858. He was graduated from the University of Edinburgh, in August, 1883, with the degree of Bachelor of Medicine and Master of Surgery and returned to Baltimore in September to engage in the general practice of medicine. He soon developed a strong predilection for sanitary medicine and, as a consequence, in 1896 accepted the position of a health inspector in the Health Department of Baltimore City. In 1898, he was appointed health commissioner and ever since has served the city in the capacity of health commissioner or as assistant health commissioner except for the period from 1915 to 1919 when he acted as a chief of the bureau of communicable diseases in the State Health Department. Dr. Jones was a pioneer in the modern science of preventive medicine. At the time that he first joined the health department the practical import of the discoveries of Koch, Lister, Pasteur, Behring and others were just beginning to be realized by the profession. Dr. Jones early began to turn this knowledge to the betterment of health conditions in Baltimore which were notoriously bad. Largely through his efforts, the Baltimore sewerage system was built. He was a leader in the movement for the betterment of the city's drinking water. He prepared the act for the pasteurization and the modern distribution of milk. These ordinances put an end to the old milk pail from which the milk-wagon driver dipped milk. These laws have reduced the incidence of typhoid fever and other intestinal complaints almost to the vanishing point. He advocated the hospitalization of contagious diseases and it was his leadership that finally resulted in the construction of Sydenham Hospital for Contagious Diseases. The city nurses were organized and developed during his administration, and the inspection of meat and other foods were provided for. He completely revolutionized the health of the city by these and many other reforms. His activities were varied and manifold. In spite of his public duties, he found time to teach the budding disciples of Aesculapius. From 1898 until 1915, when the College of Physicians and Surgeons merged with the University of Maryland, he was its professor of hygiene and public health and continued to serve in that capacity in the amalgamated school. Before that he had served as professor of physiology in the Woman's Medical College of Baltimore, and as associate professor of physiology and professor of obstetrics in the College of Physicians and Surgeons. He was a member of the American Medical Association and secretary of its section on public health from 1910-1914, and chairman, 1914-1915, the American Public Health Association, the Medical and Chirurgical Faculty of Maryland, etc. His abilities were highly regarded by public health officials throughout the country.

The following editorial appeared in *The Evening Sun*, Baltimore, April 11, 1932:

DR. C. HAMPSON JONES

Dr. C. Hampson Jones, Commissioner of Health, whose death occurred this morning, spent thirty-four years of his medical career in public health service. Thirty of those years were spent in the city's Department of Health. Since 1919 he had been the department's administrative officer:

There is an explanation for this long period of service in so responsible a position, and that explanation is not political. Dr. Jones had the confidence and support of the medical profession. He specialized in hygiene and preventive medicine when the prophylactic trend of modern medicine was at its beginning. He took over a health department that had been largely a political institution and organized it into an active agency for the prevention of disease.

Under the leadership of Dr. Jones the Health Department advocated many of the health measures that now are the law of the municipality. Notable among these is the milk ordinance requiring pasteurization and sanitary methods of handling and distribution. The Health Department under Dr. Jones played an important part in urging the purification of the city's water supply. The result has been a marked lowering of the death rate and effective control of typhoid fever.

These and other accomplishments won for Dr. Jones such support from the medical profession that politicians found it expedient to keep hands off when came changes of administration. Indeed candidates for the Mayoralty generally found it expedient to announce before election that Dr. Jones would be retained as Health Commissioner. No higher tribute to a man's public service than that could be paid.

The Sun, April 12, 1932, commented editorially upon Dr. Jones' death, as follows:

DR. C. HAMPSON JONES

For more than two decades Dr. C. Hampson Jones represented in the minds of the people of Baltimore a high standard of public service and sincere devotion to the work of protecting the health of the community. He was intolerant of political interference in the task with which he was intrusted and thus it came about that the public insisted that no change of administration in the City Hall should be permitted to affect Dr. Jones' position.

With the exception of an interval of four years, Dr. Jones had been associated with the Health Department since 1896, a period of service that witnessed marked progress in betterment of conditions which especially bear upon public health. He saw the city emerge from its cesspool era and begin the long struggle that practically eliminated typhoid fever by protecting the water shed, installing a modern filtration plant and safeguarding and pasteurizing the milk supply. Streets were paved and cleanliness made possible by rapid elimination of cobble stones. Inspection of foods followed and contagious diseases were combated with modern scientific weapons. Vaccination was stringently enforced and inspection of school children efficiently carried out.

As a result, Dr. Jones had the satisfaction, during his direction of the Health Department, of seeing the city's death rate decline to a figure that made it no longer stand out in tables of vital statistics as the symbol of a backward and negligent community. It would be difficult to exaggerate the value of such a service as Dr. Jones' in the prevention of disease, in checking the spread of contagion, in better hospitalization of the sick, in salvage of human life and in building up on a scientific, nonpartisan and efficient basis an organization upon which the community can depend to safeguard its most vital interest—public health. His was a useful, a noble career.

- DR. THOMAS MARSHALL JONES, Alexandria, Va.; class of 1870; for many years coroner; aged 83; died, May 11, 1932, of prostatic hypertrophy and uremia.
- DR. A. A. MAYNARD, Kerr, N. C.; P. & S., class of 1885; aged 72; died, April 4, 1932.
- DR. WILLIAM BERNARD KENNEY, Pawtucket, R. I.; P. & S., class of 1902; aged 54; died, March 11, 1932, of arteriosclerosis, chronic nephritis and uremia.
- DR. WILLIAM P. LOVE, Flat Rock, W. Va.; P. & S., class of 1884; aged 70; died, May 10, 1932; of abdominal carcinoma.
- DR. JOHN HENRY MARTIN, New Matamoras, Ohio; P. & S., class of 1893; for many years a member of the board of education; aged 71; died, April 28, 1932, of cardiac disease.
- DR. WILLIAM VOLNEY MCCANLESS, Danbury, N. C.; P. & S., class of 1888; aged 79; died, April 24, 1932, of angina pectoris.

- DR. ALBERT MONTGOMERY DUPUY McCORMICK, Berryville, Va.: class of 1888; Medical Director, U. S. Navy with rank of Rear Admiral, retired; Fellow of the American College of Surgeons; aged 66; died, April 20, 1932, of coronary thrombosis. Admiral McCormick was born at Berryville, Va. in 1866. He entered the U. S. Navy in 1888 as an assistant surgeon and was retired in 1930 on attaining the age of 64. During the Spanish-American War he served on the U.S.S. Panther and at Guantanamo Bay, Cuba. In 1908 he was assigned as fleet surgeon, third squadron Atlantic Fleet. He was on duty at the Naval Academy from September, 1910 to 1919 and was given a special letter of commendation for his services during the World War as senior medical officer at the Naval Academy.
- DR. W. OLIVER McLANE, Frostburg, Md.: class of 1892; aged 63; was found dead, May 14, 1932, of cardiac disease.
- DR. WILLIAM GILLESPIE MORROW, West Hickory, Pa.: B. M. C., class of 1896; member of the township school board; aged 63; died, February 1, 1932, of pulmonary hemorrhage, consecutive to injuries received in an automobile accident.
- DR. J. HARRY OPPENHEIM, New York, N. Y.; class of 1930; aged 29; died, March 7, 1932, of coronary thrombosis and diabetes mellitus. Dr. Oppenheim was born in New York City. His education was obtained in the Public Schools of New York and City College of New York. He was a B.A. of the University of Missouri, in which institution he took his first year of medicine 1930-1931, he interned at the Beth Israel Hospital, New York City. All of his class mates join in offering to his family their sincere sympathy for the untimely death of a youth who had a brilliant outlook for the future.
- DR. JOHN H. PHILLIPS, Atlanta, Ga.; B. M. C., class of 1893, aged 65; died, April 16, 1932.
- DR. GRANVILLE HAMPTON RICHARDS, Port Deposit, Md.; class of 1908; aged 48; died, May 10, 1932, of cardiac disease. He leaves a widow, the former Miss M. E. Wright, R. N., University of Maryland Training School for Nurses, class of 1908.
- DR. JOHN L. ROBERTSON, Pittsburgh, Pa.: P. & S., class of 1888; aged 71; died, March 20, 1932, of coronary occlusion.
- DR. GINNADA T. SIKES, Youngsville, N. C.; class of 1883; aged 68; died, March 2, 1932, of cerebral hemorrhage.
- DR. LOAMMI J. SMITH, Ridge Spring, S. C.; class of 1903; served during the World War; aged 53; was found dead, April 12, 1932, of acute dilatation of the heart.
- DR. JACOB LONG SOWERS, Lexington, N. C.; class of 1921; past president of the Davidson County Medical Society; aged 38; was killed, May 1, 1932, in an automobile accident.
- DR. WINCHESTER C. SMITH, Williston, S. C.; P. & S., class of 1879; aged 77; died, May 28, 1932, of chronic cholecystitis, cholelithiasis, thrombophlebitis and gangrene.
- DR. JAMES MCPHERSON TEMPLETON, Cary, N. C.; B. M. C., class of 1882; served during the World War; aged 76; died, May 1, 1932, of cardiac disease.
- DR. JOHN WADE, Baltimore, Md.; P. & S., class of 1902; aged 68; died June 2, 1932, of bronchopneumonia, arterial hypertension and nephrectomy.
- DR. JOHN SAMUEL BENJAMIN WOOLFORD, Roswell, N. M.; class of 1896; aged 60; died, July 4, 1932. He was the husband of Eliza Leiper Winslow, daughter of Dr. Randolph Winslow, class of 1873, emeritus professor of Surgery.

APPLICATION FOR MEMBERSHIP

MEDICAL ALUMNI ASSOCIATION

Name.....

Address.....

School..... Year.....

A check for \$5.00 should accompany this application to cover dues for one year.

Tear out and mail to Secretary, Medical Alumni Association, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.

CHANGE OF ADDRESS

The Editorial Committee is making every effort to maintain a complete and accurate file of our alumni. This is a difficult task, and cannot be done without the aid of our graduates. We therefore, request each and every one of you when changing your residence to fill in the accompany form.

Name.....

Old Address.....

New Address.....

Tear out and mail to Managing Editor, Bulletin, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.

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Vol. XVII

OCTOBER, 1932

No. 2

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OF THE

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UNIVERSITY OF MARYLAND



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- Communications.....Original articles, books for review, letters, etc., should be addressed to Nathan Winslow, M. D., Managing Editor, Bulletin of the School of Medicine, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.
- All matter concerning the Alumni Association should be sent to Kenneth B. Boyd, M. D., Secretary of Medical Alumni Association, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.
- Opinions.....The Editors do not hold themselves responsible for the views expressed by authors or in signed editorials.
- Articles.....Alumni are cordially invited to submit articles. The Board of Editors on their part will give to any paper so submitted a sympathetic reception, but reserves the right to return to the author any article not deemed suitable to the purposes of the Bulletin. Articles are accepted subject to the usual editorial revisions, and with the understanding that they have not been published elsewhere. Bibliographies should give the name of the author, the title of the article, the name of the journal or book in which published, the year, the volume, and page.
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BULLETIN

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Vol. XVII

OCTOBER, 1932

No. 2

DIAGNOSTIC CURETAGE*

By WILLIAM S. GARDNER, M.D.

BALTIMORE, MD.

When excessive uterine bleeding is present and there is nothing in the history or in the physical examination of the patient to offer an explanation for the hemorrhage, we have to rely almost entirely on a diagnostic curetage and a microscopical examination of the scrapings. The ultimate result depends upon the personal equation of the operator, the type of curet used, the preparation of the material removed, and the familiarity of the examiner with the microscopical appearance of such lesions as are the cause of or are associated with uterine bleeding.

The selection of an efficient curet is a matter of first importance. Dull curets of all types are very inefficient and consequently useless. The small saw-toothed curet is the poorest instrument that is commonly used; because it tears the endometrium into such small bits that it is difficult to secure pieces that are sufficiently large to make satisfactory sections. Fairly good results can be obtained by the use of the common round ended curet if it is not too small. The main objection to this type of curet is the tendency for it to remove a narrow strip of endometrium with beveled edges, and it is very difficult to apply it evenly to the entire lining of the cavity of the uterus.

The most satisfactory curet is one that is as large as conveniently can be introduced through the cervix. The loop of the curet should

*From the Departments of Gynecology and Pathology, University of Maryland School of Medicine.

be slightly flattened at the end so that a definite surface is covered at each stroke. The edge of the curet should be sharp and set so that it will strike the uterine wall at about a right angle, making it a scraping and not a cutting instrument. A curet blade that is set at such an angle that it will cut like the blade of a carpenter's plane is neither satisfactory nor safe. With a curet of the proper type the whole surface of the cavity of the uterus can be gone over very quickly and with much more certainty of covering the whole of the endometrium than can be done with most curets that are in general use.

The curet should be introduced gently to the fundus of the uterus and then brought down firmly to the internal os. This is repeated until the whole cavity of the uterus has been gone over. This method will enable the operator to remove fragments of the endometrium large enough for satisfactory microscopical examination. It also increases the probability of not missing any portion of the uterine contents. With a small curet it is easy to remove a portion of endometrium that is plainly a benign hyperplastic or hypertrophic condition and miss a beginning adeno-carcinoma.

There has been so much said about puncturing the uterine wall with the curet that many operators are too timid in its use. This accident is much more likely to occur with the use of a small curet than it is with a large one. It should be remembered that perforation of the uterus with a curet always takes place when introducing the curet, never during its withdrawal. Do not paw over the endometrium. Introduce the curet gently and then bring it down like you had gone after something that you had expected to get, and get it.

It is useless to send to a laboratory technician the scrapings mixed with blood just as it is removed. To get good results the scrapings should be washed thoroughly with cold water immediately after they are obtained. Then collect the tissue after it has been freed of blood by the washing on a piece of gauze; draw the gauze up around it, making a small pouch; tie the neck of the pouch and drop it into a solution of formaldehyde. The gauze is left on until the tissues are hardened; it is then removed and there remains a definite mass that easily can be blocked and cut.

The matter of the greatest importance to be considered in a diagnostic curetage is the detection of early malignancy in the endometrium. To aid in clarifying this subject, the discussion in this paper is limited to the two types of hypertrophy of the endometrium; the

modification of the appearance of the commonly recognized type produced by changes that correspond to the cyclical changes that occur in the normal endometrium; to emphasize the difference between these changes and those due to malignancy; and to show that benign hypertrophy and malignancy may be found in the same endometrium.

After looking over a large series of uterine scrapings removed for diagnosis from patients having excessive uterine bleeding among other conditions two distinct types of hypertrophy of the endometrium were described by me in a paper published in 1915. One of these was called the ovarian type, because it was found constantly associated with demonstrable ovarian lesions. The particular section photographed at that time was from a woman 23 years old who had bled constantly for many weeks. In one ovary she had a Graafian cyst and in the other ovary was a small multilocular cyst.

Fig. 1 (12358) is a similar condition. The patient was 26 years old and for five months she had menstruated regularly, but had flowed sixteen days at each period.

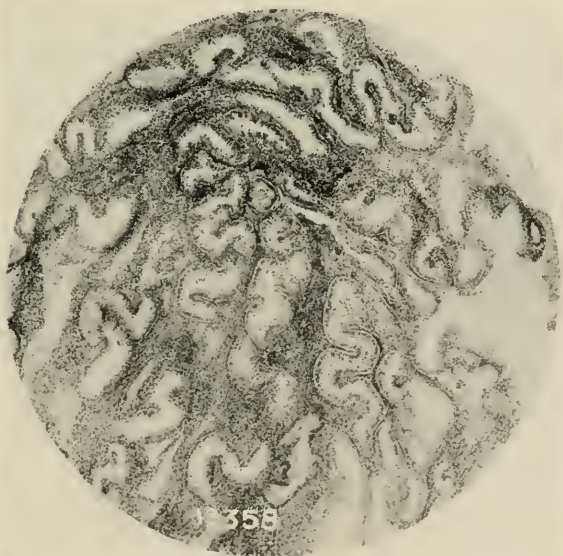


FIG. 1 (12358). Ovarian type of hypertrophic endometrium.

An endometrium of this type shows numerous moderately dilated, tortuous glands, and an apparent decrease in stroma. The epithelium of the glands is regular in distribution and has no tendency to buckle out into the glands as it does in the premenstrual endometrium, or to pile up irregularly as it does in adenocarcinoma.

The only thing gained by a curetage in these patients is the making of a diagnosis. After the curetment they stop bleeding as a rule only until the time for the next menstrual period and then the excess bleeding recurs. One of three things can be done to control the excess bleeding permanently; the use of radium or x-ray or resection of the ovaries. The use of either radium or x-ray treatment may bring about a permanent amenorrhoea and as this condition is present most frequently in young women a permanent cessation of menstruation is very undesirable. By resecting the ovaries, the ovarian secretion is diminished and regular menstruation is preserved, the child bearing possibilities are not removed, but the excessive bleeding is controlled.

In this series a picture of the uncomplicated "Swiss Cheese" type of hypertrophic endometrium is not reproduced, because it has been

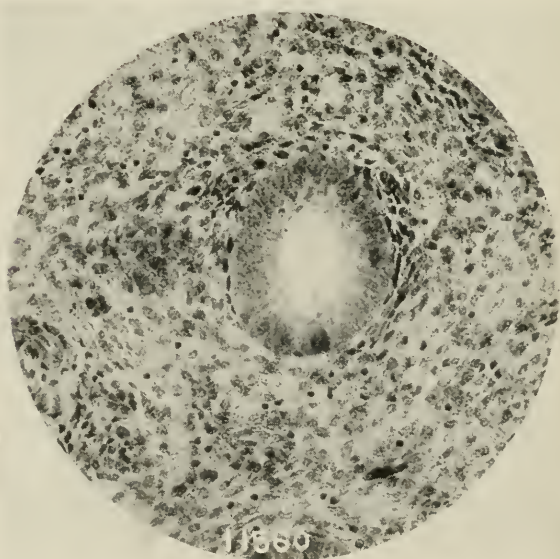


FIG. 2 (11560). Glands small; epithelium of glands very thick.

shown so often that the picture of the increased stroma, the thickened epithelium in the smaller glands and the widely dilated glands with the more or less thinned out epithelium is already familiar, but there are many other changes in the endometrium that are very closely related to the typical Swiss Cheese type, if not identical with it, and which are probably due to the same causes that produce the typical form. A few of those are illustrated and briefly discussed.

Fig. 2 (11560). This patient, aged 37, had been bleeding irregularly and excessively for six months. At the time of the curetment she had been bleeding constantly for fifteen days. In this case the glands were not crowded together as in Figure No. 1, but were rather widely and evenly spaced and very regular in size. The marked difference from the normal glands was that each had a lining of epithelium much thicker than normal. This is clearly shown in the high power photomicrograph of one of the glands. I believe that this is only an earlier stage of what is recognized as the ordinary type of hypertrophic or hyperplastic endometrium with a post menstrual modification.

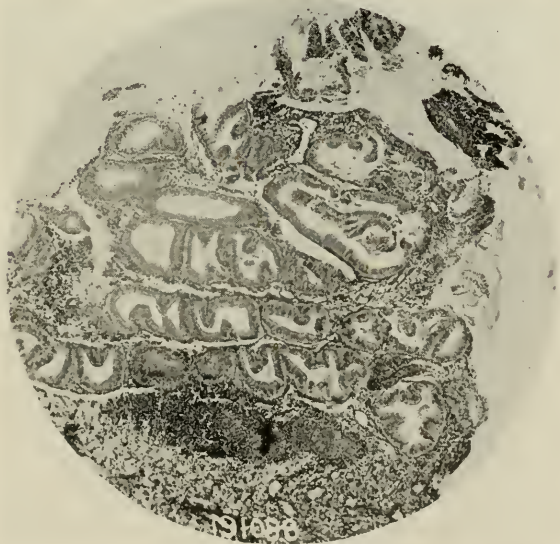


FIG. 3 (1908B). Glands considerably enlarged and tortuous: epithelium of glands very thick.

Fig. 3 (1908-B). This patient was 33 years of age and had been bleeding intermittently for three months. The bleeding would continue for four or five days, stop for a few days and begin again. It was impossible to decide which flows corresponded to her regular menstrual period. The surface epithelium was intact. It will be noted that several glands are cut lengthwise. The epithelium in the glands is very thick and buckles out into the glands. This buckling of the epithelium may be due at least partly to the ordinary changes of an approaching menstrual period, but this fairly regular buckling of the epithelium must not be confused with the irregular filling up of the glands that is seen in adenocarcinoma.

Fig. 4 (11947-B). Patient, aged 47, began bleeding excessively ten months before admission to the hospital and continued for two months; later bled over two months and was bleeding on admission. The field photographed is one near the surface of the endometrium. The glands are large, the epithelium lining them is very thick and buckles out into the glands. The picture is similar to that of Fig. 3.



FIG. 4 (11947 B). Dilated glands near surface of endometrium: epithelium thick: premenstrual changes.

Fig. 5 (20361-B). This patient, aged 42, who had bled continuously from December 22, 1931, to February 1, 1932, was admitted to the hospital for excessive uterine bleeding. Curetment was done February 23, 1932. One portion of the slide from which this picture was taken showed dilated glands with thick epithelium, such as is found in the ordinary hypertrophic endometrium. In the portion of the slide photographed the tissues were very oedematous, the stromal cells swollen and lying very loosely. The glands are enlarged and show irregularities in outline very similar to the normal premenstrual endometrium.

The changes in the endometrium shown in Figures 2, 3, 4 and 5 are the results of the loss of balance of the endocrines that modify the endometrium. None of them show the large dilated glands so conspicuous in the so-called Swiss Cheese type of hyperplasia, but this is because in these cases there did not happen to be any glands that were occluded and consequently no excessive dilatation. The basic condition is the same in all. These pictures also show that in women who have not reached the menopause it is possible to have a pathological endometrium which has engrafted upon it changes similar to

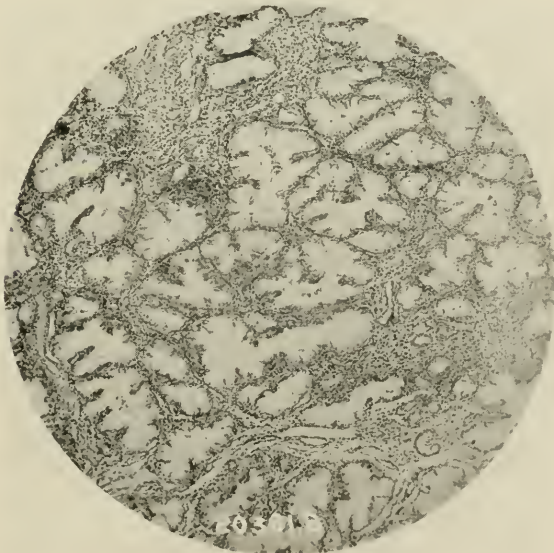


FIG. 5 (20361). *Edematous endometrium: premenstrual changes.*

the changes in the normal endometrium and brought about by the same influences. Fig. 2 represents a modified post menstrual endometrium. Figures 3, 4 and 5 represent various types of the modified premenstrual endometrium. None of them are typical of the normal endometrium, but they all show modifications similar to those found during the normal menstrual cycle.

Fig. 6 (19336). This patient, aged 43, was admitted to hospital April 15, 1931, for uterine bleeding from March 13th to the 26th, and again from April 11th until admission. She was curetted on April 17th.

On superficial examination of this slide it might be taken for one of the Swiss Cheese type, but there is too much hyperplasia of the epithelium lining the glands. It is thick in all the glands, and in many of them not buckled out as in the premenstrual endometrium, but is heaped up irregularly in some glands much more than in others. May 1st: The uterus was removed. In it were found small, apparently normal, glands penetrating into the muscularis, and in the endometrium were glands with piled up epithelium identical in ap-



FIG. 6 (19336). *Adenocarcinoma in what was apparently an ordinary hypertrophic endometrium.*

pearance to those found in the scraping. Diagnosis: Early adenocarcinoma.

Fig. 7 (17891-A). Patient, aged 64, had been bleeding from the vagina for two years. This field shows a typical picture of the Swiss Cheese thickening of the endometrium. Here are the little glands and the very large glands and apparent increase of stroma. The epithelium of the glands is not excessively thickened in any place but it is clearly much thinner in the larger glands than in the smaller ones. The picture is typical of the benign overgrowth of the endometrium as found in elderly women. If nothing else had been found on this slide, it would have been concluded that in this case there was present a common benign condition and that the menorrhagia would have been cured by the curetment. But large sections of endometrium had been removed by a sharp curet and on the same slide with the field shown in this photograph was another field entirely different as is shown in Fig. 8 (17891-B). In this field the glands are chaotic; the epithelium is thick, irregular and piling up into the lumens; the

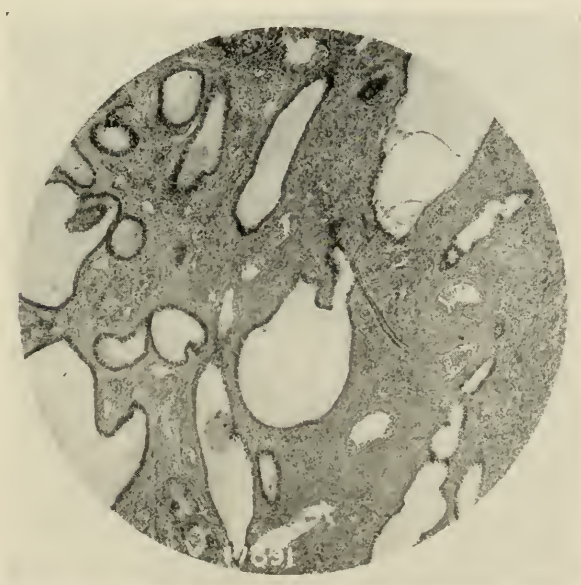


FIG. 7 (17891-A). The typical "Swiss Cheese" hypertrophy of the endometrium: glands of various size close together; the epithelium in the larger glands is lower than in the smaller ones.

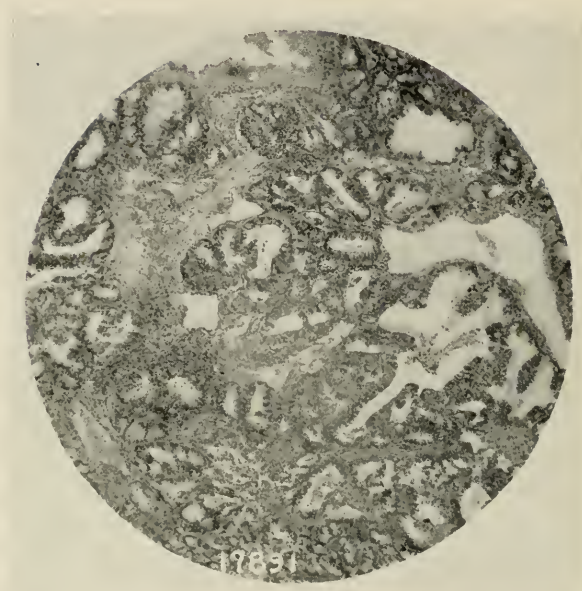


FIG. 8 (17891-B). Another field from the same slide from which Fig. 7 was made. Adenocarcinoma.

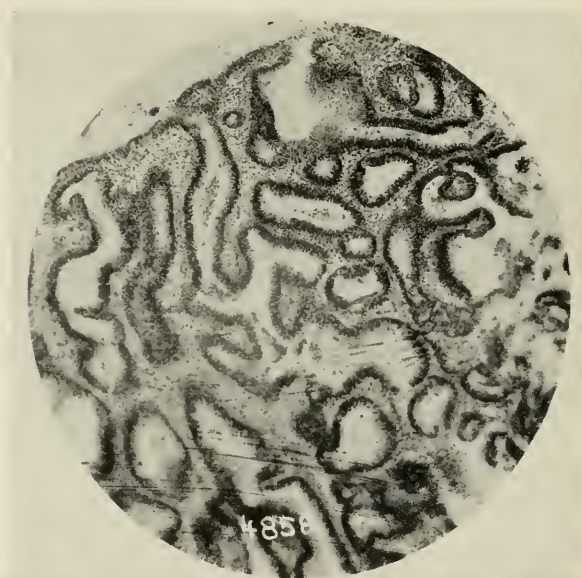


FIG. 9 (4858-A). The appearance of a benign endometrium with numerous large glands lined by thick epithelium.

stroma is thinned out and in considerable areas had disappeared entirely. This is an unmistakable picture of adenocarcinoma. Here, then we have the benign and malignant growth not only in the same endometrium but on the same slide.

Fig. 9 (4858-A). This patient, aged 63, menstruated regularly up to the age of 58. For the past two years she has been bleeding at irregular intervals. One year before admission to the hospital she was cureted in a hospital near her home. The scrapings were examined by an excellent pathologist and pronounced benign. The bleeding recurred and she came to Baltimore. She was again cureted and one field on the slide showed the glands to be larger than normal but quite uniform with no piling up of epithelium in the lumen of the glands. On the same slide was the field from which Fig. 10 (4858-B) was made. This field shows numerous small gland spaces lined by thick epithelium that piles up and a destruction of the stroma.

I doubt if any one would make a diagnosis of adenocarcinoma from the field shown in Fig. 9, but the field shown in Fig. 10 is certainly



FIG. 10 (4858-B). Adenocarcinoma. The picture was from the same slide that Fig. 9 came from.

adenocarcinoma. This was confirmed by examination of the uterus after it was removed and by the subsequent history.

It cannot be too much emphasized that to get satisfactory results from diagnostic curetage, the endometrium must be removed in relatively large pieces and removed thoroughly. The washed scrapings must be mounted so that in a compact field a section of everything removed can be secured.

Endometrial glands lined by thick epithelium are usually benign, but they are so frequently associated with or undergo a transition to malignancy that they should be looked upon with suspicion and inspected with great care.



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METHYL SALICYLATE POISONING*

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Methyl salicylate (oil of wintergreen) is used in many homes as a household remedy for rheumatic joints and sprains. The following two cases of poisoning draw attention to its dangers. When taken internally, in therapeutic dosages, symptoms of intoxication may occasionally be observed, but the accidental or intentional taking of an overdose has been followed by death in 44.4% of the previously reported cases. Moreover, a dangerous dose may readily be swallowed since in the average adult, one to one and a half ounces are usually sufficient to cause death, while as little as 10 cc. has been fatal in a child.

Case 1—White male, age 49 years, admitted to the Mercy Hospital in a stuporous condition with a history of taking an ounce and a half of oil of wintergreen by mouth.

Past History. Patient had been for many years a heavy drinker. Four years before this last admission, he had been treated in another hospital for an alcoholic psychosis with polyneuritis. He had made a good recovery, although there had been some slight residual disturbance in gait. His tolerance for alcohol had become less in recent years, so that a few drinks were sufficient to cause considerable mental confusion. The patient suffered from chronic bronchitis with recurrent acute exacerbations. In addition he had had two attacks of lobar pneumonia.

Present Illness. Twenty-four hours prior to admission to the hospital, the patient had started a drinking bout by drinking about one pint of whiskey. He continued to drink during the evening and night of that day and early in the following morning he found a two ounce bottle of synthetic methyl salicylate on the bathroom shelf and drank three-fourths of its contents. Shortly after this he was discovered while making his way out of the house. He was mentally confused and his gait was unsteady. Before he could be reached he fell and struck his head on a stone pavement. He was carried in, unconscious. He aroused from this state in a few minutes and began vomiting. The vomitus was said to have a greenish yellow color and a strong odor of the oil of wintergreen. The patient remained in a semi-stuporous condition with repeated attacks of vomiting throughout the morning. Diarrhea set in a few hours after the ingestion of the drug. Since the patient's condition showed no improvement through the morning, he was admitted to the hospital entering there about six hours after the swallowing of the poison.

Physical Examination. Mentally confused—no connected response to questions. Contusions on the forehead. Pupils equal; reacted to light and accommodation. No strabismus. Ophthalmoscopic examination negative. No bloody discharge from ears or nostrils. Apparently quite deaf in both ears.

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No asymmetry of the face. No evidence of paralysis. The deep reflexes were diminished in the upper extremities and were absent in the lower extremities.

Patient was a short, rather heavy set, flabby man. Skin was cold and clammy. The mucous membranes were of fairly good color. The mouth and pharynx were negative. There was a marked odor of oil of wintergreen to the breath. The respirations were labored and a little stertorous in type. The lungs expanded equally; were resonant throughout on percussion. The breath sounds at the bases of the lungs, posteriorly, were suppressed and there were many moist crackling rales over both bases. The examination of the heart was negative. B.P. 122/67. Abdomen was not distended. There was slight tenderness over the region of the cecum.

Course in the hospital. Immediate gastric lavage was carried out, with tepid water, until the return flow was clear. Stomach was then washed with one quart of 1% sodium bicarbonate solution. A high colonic irrigation was given following which proctocolysis was instituted with a solution of 10% glucose and 5% sodium bicarbonate. Ten grains each of sodium citrate and sodium acetate were given by mouth, to be repeated every four hours.

The patient showed no response to these therapeutic measures, and during the first few hours after admission his condition became steadily worse. He continued to vomit at fairly frequent intervals, a greenish yellow fluid, which in spite of the lavage still had a strong odor of oil of wintergreen. Urine was passed involuntarily and it was noted that it also had an oil of wintergreen odor. At the end of four or five hours in the hospital the patient had lapsed into a deeply comatose state. The most striking clinical feature in his appearance at this time was the abnormally deep and full respirations. The type of breathing was so strongly suggestive of the Kussmaul breathing of diabetic coma that a CO_2 combining power of the plasma was at once carried out. It was reported to be 28.8 volumes percent. Patient was then given 400 cc. of a 4% solution of sodium bicarbonate, intravenously. This was followed at once by a further 500cc. of normal saline solution. The patient's improvement was striking and immediate. Before the needle was removed from the vein the respirations were already slower and less deep. The quality of the pulse improved considerably. Within an hour the patient was sufficiently conscious to obey simple commands. The patient's progress, thereafter, was maintained and by the following morning he was considered out of danger. The CO_2 combining power was repeated at this time and found to be 58 volumes percent. There was no vomiting after the first 24 hours. Nourishment was well taken. No diarrhea was observed. The patient's deafness wore off during the first few days. A previous slight impairment of hearing alone persisted. Because of the necessity of signing important business papers, a psychiatric consultant was called in who pronounced the patient entirely competent for the transaction of his affairs.

On the fourth day after admission the patient developed a cough, fever, and signs of consolidation in the base of the left lung. With this there was a return of mental confusion and delirium. The course of the pneumonia was unfavorable. The consolidation increased in the left lung and an area of consolidation appeared in the right base. A Type II pneumococcus was isolated from the sputum. The patient died on the twelfth day after admission and in the eighth day of his pneumonia. Permission for an autopsy was not obtained.

Special Examinations.

1. An Xray of the skull taken after admission showed no evidence of fracture.
2. Blood Count.
2nd Day. Hgb. 80%. R.B.C. 3,500,000. W.B.C. 11,700.
Differential P.M.N. 81%. S.L. 11%. LL. 7%. Trans. 1%.

3. Urine Examinations:

1st Day.	Yellow.	Sp.Gr. 1.015.	Albumen ++.	Sugar-Sl.Tr.
	Acetone +++.		Microscopic Occ. W.B.C.	
2nd Day.	Yellow.	Sp.Gr. 1.003.	Albumen-Sl.Tr.	Sugar-Neg.
	Acetone-Neg.		Microscopic Occ. W.B.C.	
4th Day.		Sp.Gr. 1.005.	Albumen-Very Sl.Tr.	Sugar-Neg.
	Neg.	Acetone-Neg.		
9th Day.	Amber.	Sp.Gr. 1.019.	Albumen +.	Sugar-Very Sl.Tr.
		Acetone-Neg.	Microscopic-3 hyaline casts seen.	

4. Blood Sugar.

1st Day.	122.
2nd Day.	167.
9th Day.	187.

5.

	Blood Urea	Creatinin
1st Day.	30	..
2nd Day.	79	2.
10th Day.	32	..

6. The urine and vomitus were analysed for methyl salicylate and gave positive reactions by ferric chloride test, with violet color resulting (22).
7. The residue in the 2 ounce bottle was traced to its source and found to be 98% synthetic methyl salicylate.
8. A sample of the whiskey which the patient had been drinking was tested with negative results for both methyl alcohol and salicylates.
9. CO₂ Plasma Vol. Percent. 1st Day—28.8%. 2nd Day—58%.

Case 2—A white, male child, age 21 months, was admitted to the University Hospital in a deeply comatose condition, eighteen hours after swallowing an unknown amount of oil of wintergreen.

Past History. Negative, except for the occurrence of two attacks of pneumonia during his second year.

Present Illness. The child had obtained a small bottle of oil of wintergreen which was in the bedroom and had swallowed and spilled all of its contents. The amount swallowed could not be estimated. When discovered he had already begun to vomit. He was taken by the parents, at once, to the accident room of a hospital, where gastric lavage was carried out; the patient's parents reassured and the child allowed to be taken home. He vomited repeatedly through the night and the following morning. Some diarrhea was noted. Child was dull and stuporous and breathed rapidly. A physician was called in who because of the presence of fever, rapid breathing, and some elevation of temperature, suspected the onset of a pneumonia. The patient was admitted to the hospital approximately eighteen hours after the ingestion of the poison.

Physical Examination on Admission. The child was propped up on pillows; his eyes were opened, but he evidently was deeply stuporous. Respirations were very deep, free and rapid. The color of the fingers was pink. Face was pale. Lips were faintly cyanotic in color. Examination of the lungs showed that they were clear except for a few fine rales at the extreme right base, posteriorly. The heart sounds were rapid, but of fairly good tone. Temperature was 102. Pulse was 110. Respirations were 48.

Course in the hospital. The child failed rapidly and died within 3 hours after admission. Irregularity in the rhythm of the breathing appeared, and

the pulse became imperceptible at the wrist. As the respirations became slow and irregular, marked cyanosis developed. The heart action could be heard through the stethoscope very definitely for perhaps a minute after respirations had ceased.

The presence of a severe acidosis was suspected because of the history of methyl salicylate poisoning and the type of breathing present. This was confirmed by the determination of the CO_2 combining power of the plasma which was found to be 24 volumes percent. A 5% solution of sodium bicarbonate was hastily prepared and every effort was made to inject it intravenously. Unfortunately the minute collapsed veins were difficult to enter and the child died before the intravenous therapy could be administered.

Special Examinations.

1. Xray of chest showed a slight increase in the root and larger bronchial shadows, especially in the right lung.
2. Urine—not obtained.
3. Blood—R.B.C. 5,040,000. W.B.C. 23,850. Polys. 83%.
Small Lymph. 9%. Large Lymph. 3% Trans. 5%.
4. CO_2 —24 volumes percent.

DISCUSSION

A review of the literature has disclosed twenty-seven cases previously reported of methyl salicylate poisoning. (Table 1.)

Our two cases present many of the clinical features reported in those cases. These may be briefly summarized as follows:

(a) Gastrointestinal symptoms. Persistent vomiting, and in some instances diarrhea, are among the most constant features of this type of poisoning. The vomitus in our cases was watery and greenish in color and smelt strongly of methyl salicylate. Bloody vomitus is not reported. Vomiting rarely persists for more than 24 to 48 hours and is not followed by any evidence of permanent injury to the gastric mucosa in those cases which recovered. In fatal cases, gastric inflammation has been mentioned as an autopsy finding.

(b) Cerebral symptoms. In all except the milder cases of poisoning, cerebral symptoms are prominent. Irritability, mental dullness, increasing stupor and deep coma occur. The onset of these symptoms is frequently delayed for several hours or even days after the poisoning. In a number of instances, generalized convulsions have occurred. Deafness and disturbances of vision are frequently noted as in other forms of salicylate poisoning.

(c) Respiratory symptoms. From the time of the earliest reports deep breathing and dyspnea have been frequently noted as a result of this form of poisoning. In some instances acute pulmonary edema has been observed.

It is evident that the gastro-intestinal features are due to the direct irritant action of the methyl salicylate on the mucosa of the esophagus, stomach and intestines. The causation of the cerebral and respiratory symptoms is less obvious. Certain of these, such as deafness and disturbances of vision, are no doubt to be attributed to salicylate action similar to that seen in other forms of salicylate poisoning. It is obvious in our first case, however, that the coma and the deep breathing were the result of a severe acidosis. The alleviation of these symptoms, following the injection of sodium bicarbonate, was very striking. The resemblance of cases of methyl salicylate poisoning to cases of diabetic coma was early noted in the literature. The first proof of the actual existence of a severe acidosis in a case of human poisoning with methyl salicylate is due Pincus and Handley (15) who determined the carbon dioxide combining power of the plasma in their case and found it to be 35 volumes percent. Olmsted and Aldrich (14) have since reported two cases in which the carbon dioxide combining power was 33.5 percent and 37.6 percent, respectively. These authors stressed the vital importance of treatment with alkalis. No other determinations of the carbon dioxide combining power have been found in the literature. In our two cases the findings, that is, 28.8% and 24%, are the lowest heretofore recorded.

The occurrence of glycosuria in methyl salicylate poisoning is dealt with in an article by Levringhaus and Meyers (8). A reduction of Benedict's Solution by the urine of our first case was obtained on several occasions. However, since it has been noted that salicylate solutions reduce Fehling's Solution, and since it is known that methyl salicylate is excreted as such in the urine, we do not feel that this observation is definite proof of the presence of glycosuria, since the presence of sugar was not confirmed by other tests.

CONCLUSION

While the cases reported in the literature are not many, severe and sometimes fatal instances of methyl salicylate poisoning are probably not infrequent. The clinical picture in this type of poisoning is dominated by the vomiting due to gastro-intestinal irritation and by the gradual onset of stupor or coma accompanied by deep breathing. These latter symptoms are attributable to the severe acidosis which has been found to be present. In treatment the early use of large amounts of sodium bicarbonate by mouth and rectum in milder cases, and intravenously in the more severe types, is strongly indicated.

Authors*	Age	Sex	Dosage	Symptoms	Treatment	Laboratory Reports	Autopsies and Remarks	Outcome
Gallagher, P. T.....	9 yrs.	Male	15cc	Delirium-thirst. Inordinate appetite.	.....	.....	None.	Recovered.
Jewett.....	55 yrs.	Female	45cc	Early symptoms of failure of sight and hearing.	.....	.....	None.	Death.
Hamilton, A. M.....	.....	.....	15cc	Vomiting. Tremors of body. Hemiparesis —left side	.....	.....	Improvement. Two weeks.	Recovered.
Beck, T. R.....	6 Patients Adult	Male	.....	Vomiting. Vertigo-nausea. Weakness	Symptomatic	.....	Six soldiers poisoned. "Tea." Main constituent Methyl Salicylate	Recovered.
Pinkham, J. G.....	Adult	Female	30cc	Vomiting.	.....	.....	To produce abortion. Autopsy first to be reported in literature.	Death.
Stille, A.....	9 yrs.	Male	15cc	Vomiting-nausea. Rapid pulse. Labored respiration.	.....	.....	None.	Recovered.
U. S. Dispensary.....	25	Male	15cc	Vomiting 15 hours after drug was taken. Convulsions.	.....	.....	Autopsy.	Death.
McNerthney, J. B.....	3	Male	12cc	Muscle twitchings.	.....	.....	Autopsy.	Death.

* Consult "References".

Authors*	Age	Sex	Dosage	Symptoms	Treatment	Laboratory Reports	Autopsies and Remarks	Outcome
Baum, W. L.....	.....	.....	Therapeutic overdose in capsules	Amblyopia for 5 days	.....	.....	None.	Recovery.
Mann and Brend.....	3 yrs.	.....	Overdose	.....	.....	.....	.....	Death.
Rosenbloom J., and Johnson, J. R.....	40 yrs.	Male	30cc	Tinnitus. Diarrhea. Nervousness. Fever.	Alkalinization. (Mouth and Murphy, Drip.)	Diabetic Ac. and Acetone in urine 12 days.	None.	Recovery.
Meyers, H. B.....	2 yrs.	Male	30cc	Respirations rapid. Drowsiness. Excitability. Air Hunger	.....	Acetone and diacetic Ac. in urine.	None.	Recovery.
Legrain and Radonnel.....	35	Male	60cc	Cyanosis. Convulsions Collapse.	Gastric lavage.	.....	Autopsy.	Death.
Pincus, J. B., and Hadley, H. E.....	22 mon.	.....	60cc	Vomiting. Flushes. Cyanosis. Rapid, irregular pulse.	Alkalis per mouth and rectum	Leucocytosis. Retention of blood chlorides and phosphates. Acidosis CO ₂ combining power—35%	None.	Death.
Wetzel, N. C., and Nourse, J. D.....	21 mon.	.....	10cc	Vomiting, cyanosis, flushes, convulsions, Acetone odor breath. Rapid respirations. Contracted pupils.	.....	Urine showed traces of Albumin.	a. Fatty changes, cloudy, swelling liver. b. Congestion lungs. c. Degeneration of tubules of renal cortex.	Death.

* Consult "References".

Authors*	Age	Sex	Dosage	Symptoms	Treatment	Laboratory Reports	Autopsies and Remarks	Outcome
Woodbury, F. V., and Nichols, A. G.....	a. 25 yrs.	Male	.....	Vomiting. Oil of wintergreen odor to breath. Sudden death.	.....	Urine positive for salicylates.	Autopsy. Edema lungs. Acute parenchymatous degeneration of kidneys.	Death.
Woodbury, F. V., and Nichols, A. G.....	b. 22 mon.	Male	.....	Vomiting. Tonic convulsions. Troublesome. Restless.	.....	.....	No autopsy.	Death.
Arnold, D. P., and Jacobsen, A. W.....	10 mon.	Male	10cc	Vomiting. Convulsions. Hyperactive reflexes. Acetone breath. Rapid respirations. Stuporous.	Intravenous glucose.	Urine showed acetone and traces of sugar.	Autopsy. Acute hyperemia and small hemorrhages of brain. Congestion of lungs, spleen, kidneys.	Death.
Olmstead, J. G. M., and Aldrich, C. A.....	a. 4 yrs.	Female	.....	Vomiting. Cyanosis. Labored respiration. Semi-conscious.	Alkalinization.	Urine showed traces sugar, acetone, diacetic acid and salicylate. CO ₂ -33-45%. Blood sugar —130 mg. per 100 cc.	None.	Recovery.
Olmstead, J. G. M., and Aldrich, C. A.....	b. 2½ yrs.	Male	.....	Vomiting. Deep labored respirations. Pain lower oesophagus and epigastrium. Convulsions.	Emetic Alkalinization.	Urine sugar free. Pos. Acetone and diacetic acid. Blood sugar 180 mg. CO ₂ -37.6%.	None.	Recovery.

* Consult "References".

Authors*	Age	Sex	Dosage	Symptoms	Treatment	Laboratory Reports	Autopsies and Remarks	Outcome
Levringhause, E., and Meyers, O. O.....	Adult	Female	30cc	Vomiting. Vertigo. Headache. Tinnitus aurium. Deafness. Nausea Delirium.	Alkalization. (Mouth.)	Blood sugar 148 mg. Urine positive for sugar, acetone and albumin. High sugar tolerance during illness.	Nurse, Took drug by mistake.	Recovery.
Meyerhoff, Irwin.....	22 mon.	Male	24cc	Continuous vomiting. Thirst. Contracted pupils. Cyanosis. Dyspnea.	Autopsy. Congested lungs. Mucosal congestion of intestines. Liver congestion,, and cloudy swelling.	Death.

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CONGENITAL ATRESIA OF THE INTESTINES: REPORT OF TWO CASES*

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Congenital atresia of the intestines, exclusive of the pylorus, rectum and anal canal, is a relatively rare condition but of sufficient frequency to warrant clinical attention (Baty¹). Approximately five hundred cases have been reported in the last two hundred years. Atresia is defined as a congenital absence or pathological closure of a normal opening or passage, whereas stenosis is the term applied to the narrowing of any canal. Cordes² states that total occlusions are more common than stenosis, while Loitman³ affirms that stenosis is more frequent than and often accompanies atresia. Spriggs⁴ is of the opinion that "stenoses and atresias coexist but the occlusion is most often complete".

The first recognition of congenital atresia of the intestines is generally accredited to Calder⁵ who in 1733 described an atresia of the duodenum in an essay entitled "Two Examples of Children Born with Preternatural Conformation of the Guts". Following this a few cases were reported sporadically but no careful study was made until 1877, when Theremin⁶ presented an excellent review of the subject. In 1899, Braun⁷ collected 118 cases of congenital intestinal occlusion occurring among 1,980,304 newborn infants in Germany. Cordes² in 1901 tabulated 57 cases of duodenal obstruction. Two years later, Kuliga⁸ collected 189 cases and carefully discussed the etiology. In 1912 Spriggs⁴ recorded 24 additional cases and gave reference to 328 cases of atresia and stenosis in the literature. To these Cautley⁹ added 11 cases of congenital duodenal obstruction in 1919. Davis and Poynter¹⁰ in 1922 carefully studied 392 collected cases. In 1925 Farr and Fries¹¹ added 9 cases and the following year Sheldon¹² reported 25, while Baty¹ contributed 12 more cases of congenital intestinal atresia in 1929. Webb and Wagensteen¹³ presented 17 additional cases in 1931. Since that time occasional case reports have appeared in the literature.

Webb and Wagensteen estimated that congenital occlusion of the intestines occurred about once in 20,000 births. Theremin⁶ reported

*From the Department of Pathology, University of Maryland, School of Medicine.

9 cases in 150,000 children. Miller (quoted by Braun⁷) found 36 cases of atresia and stenosis in 65,000 autopsies of children in Moscow (1894). Durante¹⁴ recorded 6 cases in one year (1901) from La Maternité de Paris but included imperforate anus, which is four times more frequent than all other intestinal atresias combined (Davis and Poynter⁹). The two cases reported herewith occurred among 1834 consecutive autopsies, placing our relative frequency at 1 in 917.

The position of the atresia of the intestinal canal is most common in the duodenum, although it may be located anywhere from the esophagus to the anus. Of the 392 cases collected by Davis and Poynter the obstruction was located at the duodenum in 134 cases, 59 above and 75 below the papilla. The occluded area lay in the jejunum in 60 cases, involved the ileum and cæcum in 101 instances and the colon in 39. Multiple obstructions were present in 67. Garvin¹⁵ in 1928 described 113 cases of congenital occlusion of the duodenum and found the site of the obstruction above the papilla of Vater in 34, opposite the termination of the common bile duct in 19, below the papilla in 25, and at the duodenojejunal flexure in 19, sixteen cases remaining unclassified. In the series reported by Webb and Wagensteen¹³ the atresia was present at the duodenum in seven cases, two above and five below the papilla; in the jejunum twice, in the ileum and cæcum six. Other congenital anomalies were present in two cases (12%). Of the 67 cases of multiple atresia comprising 15% of the series published by Davis and Poynter, slightly more than 50% consisted of from two to nine occlusions in the jejunum and upper ileum, 20% in the lower ileum and colon, while the remaining 30% were scattered. Spriggs⁴ found imperforate anus to be the most common congenital deformity associated with intestinal atresia in the ratio of 20 to 1. His 328 cases of atresia were tabulated as follows: 28% occurring in the duodenum, 38% in the jejuno-ileum, 6% in the colon, 8% unclassified. Approximately 20% presented multiple occlusions, chiefly in the jejunum and ileum. A persistent diverticulum may also accompany an occlusion.

There are two types of atresia: a septum lined by mucous membrane occluding the lumen and a cul-de-sac followed by collapsed or obliterated gut. Occasionally there are actual interruptions to the continuity of the bowel for short distances caused by multiple loci of atresia, the intervening areas being represented by mere cord-like structures. These connecting portions may contain all four compon-

ent layers of the intestinal wall, which may be fused and difficult to recognize or even entirely replaced by fibrous tissue. The atresic process may be so extreme during fetal life that little semblance of a gastro-intestinal tract remains. Erb¹⁶ described in great detail an unusual case of multiple atresia of the ileum with complete isolation of a segment of bowel. Absence of the entire jejunum, ileum and greater part of the colon was reported by Thomas¹⁷ in 1884.

A host of theories has been offered in an attempt to explain the formation of congenital atresia of the intestines. They are usually classified as (1) Developmental Errors, (2) Development Accidents, and (3) Diseases of the Fetus.

In the embryo there is a physiological hyperplasia of the epithelium in the duodenum between the fourth to the tenth week of intrauterine life, producing during this period an occlusion of the lumen (Tandler¹⁸). Normally the redundant epithelium is absorbed and the lumen re-established in the fetus. However, a persistence of this hyperplastic epithelium will result in a septum lined by mucous membrane at the site of its development. It is logical to assume that a similar process can also occur elsewhere in the gut and give rise to an atresia other than in the duodenum. Weill and Pehn¹⁹ cited a case of atresia low down in the ileum. The obstruction was composed of mucosa which formed a cul-de-sac. In 1889 Bland-Sutton²⁰ stated that "Congenital obstruction and narrowing of the alimentary canal are always found in the situation of embryological events" and cited imperforate pharynx, duodenum, ileocæcum, rectum and anus in support of this statement. However, a survey of the more recent literature shows that atresias may occur anywhere in the gastro-intestinal tract and are often accompanied by errors in rotation of the gut.

Under the heading of developmental accidents may be grouped the following: congenital volvulus and intussusception, strangulation of a loop of intestine by peritoneal adhesions, and traction on a loop of bowel by the omphalomesenteric duct, dragging a portion of the intestine into the umbilicus.

Diseases of the fetus include fetal peritonitis, enteritis with ulceration of the mucosa followed by cicatrization of the gut, and fetal arteriosclerosis involving the mesenteric arteries. Erb¹⁶ mentions additional intrauterine factors such as alveolar carcinoma of the liver, hypertrophy of the head of the pancreas, and cysts in the ileocecal

fossa. Among other causes of congenital atresia may be considered the following: pressure on the bowel from without or on the duodenum where it passes through the mesocolon, deficient secretion of bile failing to expand the fetal intestine, hypertrophy of the valvulae conniventes, and overdistention of the developing cæcum with stenosis of the umbilical ring. Absence of bile pigment below the occlusion indicates that the obstruction occurred before the third or fourth month of intrauterine life, as the biliary secretion first makes its appearance about the sixteenth week. (Keibel, F., and Mall, F. P., quoted by Erb¹⁶).

Congenital atresia produces the signs and symptoms of intestinal obstruction, which need not be rehearsed here. Differential diagnosis should rule out appendicitis, strangulated hernia, volvulus, intussusception, diverticulitis and pyloric stenosis. Vomiting usually begins during the second day of life and the vomitus may be bile stained or accompanied by meconium. Complete constipation is the usual rule, enemata being ineffectual. However, meconium may be passed in small amounts, depending on the degree of constriction of the intestinal lumen. Anuria has been reported, probably due to extreme dehydration. There are quite a number of reports in the literature of an apparent familial tendency. Congenital defects tend to reappear in offspring of the same parents.

The prognosis is bad inasmuch as the exact point of obstruction cannot be accurately localized before operation and multiple occlusions (15 to 20%) cannot be recognized until the peritoneum is opened. Moreover, very young infants are exceedingly poor surgical risks.

The treatment consists in relieving the block, whenever possible, as soon as the diagnosis is made. In their survey of the literature, Webb and Wagensteen¹³ found isolated reports of nine infants who survived operation. This should shed some small ray of hope on a condition previously considered always fatal: Local infiltration is the anesthetic of choice. The incision should be made sufficiently long to allow careful inspection of the entire bowel. Once the obstruction is located, the distal segment of gut should be gently distended with warm, normal saline. If this distal bowel is undilatable or is represented by only a thin, fibrous band, or if widely scattered multiple occlusions are present, the operation is doomed to failure. Baty advises a two-stage operation, an initial enterostomy to be followed by a lateral anastomosis, depending on the condition of the patient. The

great obstacle to the successful operative treatment of congenital atresia of the intestines is the inability of the distal segment of the bowel to take up peristalsis after the obstructed area has been circumvented by an anastomosis. Since most atresias develop during the third or fourth month of fetal life, the portion of the gut below the obstruction never becomes distended with meconium and hence fails to acquire the habit of rhythmic contraction. Following operation, Farr and Fries¹¹ advise the administration of repeated, small enemata and gentle stimulation of the bowel with electricity to induce peristaltic action. Ernst²¹ of Copenhagen successfully operated on a ten-day-old male with duodenal stenosis. Sweet and Robertson²² performed an anterior gastrojejunostomy followed by a secondary duodenojejunostomy with recovery. Webb and Wagensteen¹³ found that all reported cases of enterostomy have been uniformly fatal.

CASE REPORTS

Case 1—Colored female, age 3 days, Chart No. 69237½, Department of Obstetrics, University of Maryland, Autopsy No. 1611. The patient's mother was a primipara, age 17 years, whose past history and family history were negative. She was forty weeks pregnant. Her Wassermann was negative. Labor lasted ten and a half hours and was uneventful. A full term, living child, weighing 5 lbs. 5 oz. was delivered spontaneously. No lesions were noted on the body and there was no history of cranial injury.

Shortly after birth, a thick, dark-brown fluid was seen exuding from the nostrils and mouth. The infant vomited all its feedings and never had a stool but passed meconium in small amounts. On August 1, 1930, her breathing became labored and gasping and her color cyanotic, and atelectatic rales were heard over both lungs. Discolored areas were seen on the back and were thought by a pediatrician to be manifestations of hemorrhagic disease of the newborn. A thousand units of tetanus antitoxin were administered subcutaneously without effect. The vomiting and constipation continued. The infant failed rapidly and died on the third day. Clinical impression; Hemorrhagic disease of the newborn; bronchopneumonia.

Autopsy performed four hours after death revealed moderate subdural hemorrhage with ecchymosis of the scalp, left parietal region and partial fetal atelectasis of the bases and posterior portion of both lungs with beginning bronchopneumonia. On opening the peritoneum, the stomach seemed rather large with slight constriction of the pylorus followed by a greatly distended duodenum and upper jejunum, ending in an abrupt constriction, 11 cm. below the pylorus. Distal to the obstruction the jejunum and ileum were completely collapsed. The cæcum and colon contained meconium. The remaining viscera appeared perfectly normal; no other anomalies were found.

Careful inspection of the gastro-intestinal tract revealed that the obstruction was due to a thin septum lined by mucous membrane. At this point the gut was rotated on its long axis 180°. It was patent for a distance of 3 cm. where another occlusion was present and the gut was again rotated on itself 180° but in the opposite direction (See Fig. 1). The segment of jejunum proximal to the first obstruction was 5 cm. in circumference. The stomach, duodenum and papilla were dilated but otherwise appeared perfectly normal. The lumen of the gut distal to the second obstruction was collapsed but not atresic and measured 4 cm. in circumference.



FIGURE 1. Case 1. Arrows indicate points of obstruction. Note rotation of the gut.

Serial sections were cut through the occluded areas and these showed that the obstructions were formed by diaphragms of fibrous tissue lined by mucous membrane on both surfaces. The segment of gut between the two atresias was composed of serosa, muscularis, submucosa and an atrophic epithelium. Sections of the intestine immediately above and below this region appeared normal in every respect.

Case 2—Colored female, age 4 days, Chart No. 114,445, Department of Obstetrics, University of Maryland, Autopsy No. 1834. The mother's prenatal history was negative. She was para 8. All seven children had been born alive, but four had died in infancy (causes of deaths not known). Labor lasted five and three-quarter hours and was spontaneous. The membranes and placenta were expressed complete and intact without any pathology. The baby weighed 7½ pounds and apparently was normal at birth, but after twenty-four hours she began to vomit a small amount of greenish-yellow material and refused to take the breast. The infant is said to have had two stools (color and consistency not noted) during the next three days. Physical examination revealed only slight distention of the abdomen. The persistent vomiting was thought to be due to intestinal obstruction of unknown cause.

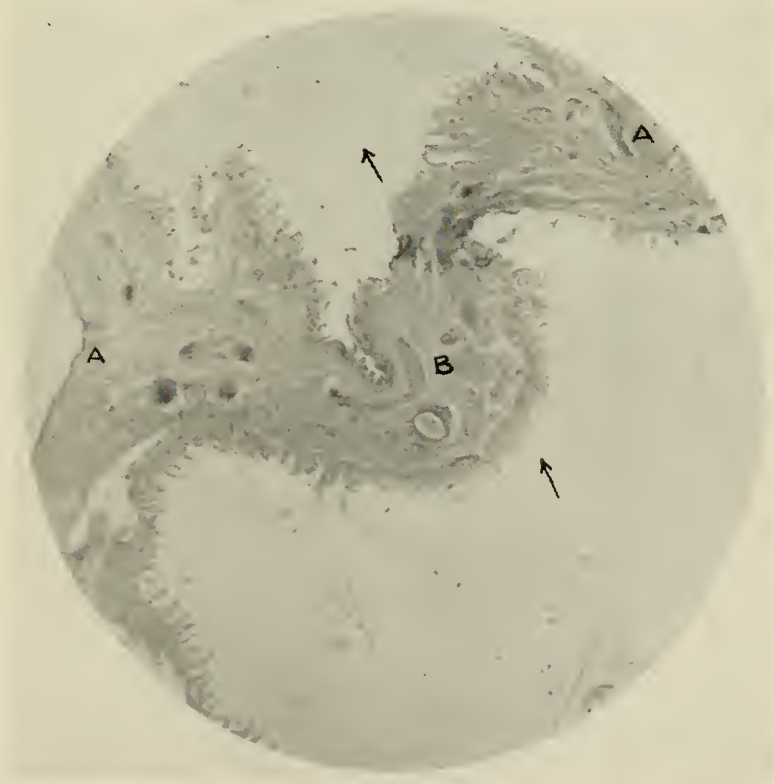


FIGURE 2. Case 2. Showing septum B obstructing lumen of the intestine, indicated by arrows. The walls of the gut are shown at A.

The parents refused to have the child admitted to the hospital for operation. It became very toxic, failed rapidly and died on the fourth day.

Autopsy performed ten hours later revealed the head and thorax to be normal. When the peritoneum was opened a greatly distended loop of intestine presented and was seen to be considerably inflamed, especially along the border opposite its mesenteric attachment. This distended segment lay in the position of the transverse colon but on closer inspection was found to be jejunum. The dilatation measured 10 cm. in circumference and continued to a point 30 cm. below the pylorus where it abruptly terminated at the site of obstruction, which was caused by a diaphragm of mucous membrane completely occluding the lumen. Below this point the lumen of the gut measured 1.5 cm. in circumference and contained only a very small amount of meconium. No rotation of the gut was present in this specimen and no other atresic areas or congenital deformities were found.

Serial sections made through the occluded area revealed that the obstruction was composed of a thin band of connective tissue containing blood vessels and lined on both sides by mucous membrane (See Fig. 2). This band of superfluous tissue lay at right angles to the long axis of the gut and probably completely occluded the lumen. In the gross examination of both specimens a blunt probe made its way with but slight resistance through the mucosa-lined diaphragm high up on one side. The thinness of the obstructing membrane at this point was probably due to post mortem autolysis. It is doubtful if a true aperture existed before death.

SUMMARY

Two cases of congenital atresia of the jejunum are reported. The obstruction in each instance was due to a thin septum of connective tissue lined by epithelium, containing blood vessels and forming a cul-de-sac in the lumen. One case presented an error in rotation between two occluded areas 3 cm. apart. The presence of the superfluous fold of mucous membrane producing the obstructing diaphragm suggests that the persistence of the physiological hyperplasia of the intestinal epithelium in fetal life may have been the cause of the atresia.

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EARLY HISTORY OF THE ROENTGENOLOGICAL DEPARTMENT OF THE UNIVERSITY OF MARYLAND

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The first X-ray Apparatus at the University Hospital was installed in the summer of 1896, on the second floor of the old hospital annex at 116 S. Greene Street. This was before the present hospital was completed. The apparatus consisted of a Rumkoff coil, storage batteries, small tube and hand fluoroscope.

It was looked upon at first rather as a curiosity. The superintendent of the hospital supervised its use, and for several years no member of the staff was placed in charge of the apparatus. Apparently it was used frequently, and very soon it became an indispensable aid in diagnosis, for in the Bulletin of the University of Maryland, Dec., 1896, Vol. I, Page 133, there is the following Editorial:

"The X-ray apparatus which has been for sometime in use at the University Hospital has a constantly growing field of usefulness. Its aid is frequently invoked in various departments, both medicine and surgery, and its habitual use develops a new and distinct skill which is of increasing value and importance."

The earliest hospital record of the apparatus being used to locate a foreign body is in the Bulletin of May and June, 1897, Vol. 2, Page 70, viz.,

"Dr. I. R. Trimble brought a patient to the University Hospital who was suffering much pain in the end of the right forefinger which was lacerated. She gave a history of having run a cambric needle into this finger two years ago. The finger was examined by means of the X-ray apparatus and a foreign body was located a little in front of and somewhat below the distal joint of the finger. The hand was thoroughly cleansed and under local anesthetic, the finger was opened and a piece of needle about one-quarter of an inch in length, much oxidized, was removed."

The X-ray work was not regularly organized as a separate department until 1900, when Dr. Compton Riely was appointed Chief of the Department. A new Snook jumbo coil and mechanical interrupter were purchased, and a dark room provided and the Department was moved into two small rooms on the third floor of the present hospital building, across the hall from the Surgical Amphitheatre.

About this time, the bad effects of long exposure to direct radiation were being generally observed, and as there was no protection provided for the operator, it was not long before Dr. Riely noticed that his hands were showing the effects of over-exposure and he resigned and devoted his entire time to his orthopedic practice.

Dr. Willis Bryan Fitch was then placed in charge, but remained only one year and resigned on account of poor health.

After the resignation of Dr. Fitch in 1904, Dr. Nathan Winslow was appointed Roentgenologist. Through his efforts, a larger and more powerful coil and electrolytic interrupter were added to the equipment. At this time, the X-ray was used principally for the detection of fractures, the localization of foreign bodies, determining the presence of kidney stones and for diseases of the gastro-intestinal tract. Dr. Winslow says that with this new apparatus, it was possible to make X-ray examinations of the hand in about 1 minute, chest in 3 minutes, kidneys in from 8 to 10 minutes and pelvis in about 15 minutes. There was still no protection provided for the Roentgenologist, and in 1907 Dr. Winslow's skin began to show the effects of repeated exposure and he resigned and discontinued all work with the X-ray.

Dr. Winslow was succeeded by Dr. Howard E. Ashbury, who was the first member of the staff to devote his entire time to Roentgenology and specialize in this branch of medicine. Dr. Ashbury resigned in 1911 to devote his time to private practice.

In 1911 Dr. Henry Chandlee was appointed Roentgenologist, and Dr. Henry J. Walton Assistant Roentgenologist. The X-ray work at this time had become so important that it was thought best to have the Department open all day. Dr. Chandlee was one of the pioneers in Roentgenology in Baltimore. Very soon after Roentgen's discovery in 1895, Dr. Chandlee, being of a mechanical turn of mind and an electrical engineer, became interested in the X-rays and began experimenting with a small coil, some wet cells and Crooks tubes. By 1898 he had built for himself a very serviceable X-ray machine which took excellent radiograms. He was the first physician in Baltimore to practice Roentgenology and to do X-ray work in his office. His apparatus was small and could be easily transported, and on a number of occasions he made X-ray examinations in the homes of patients. He also gave a number of lectures and demonstrations to audiences, both in the city and counties, and it was frequently my

privilege to assist him on these occasions. Another hobby of Dr. Chandlee's was photography. He was untiring in his efforts to improve his technic, both in the making of his X-ray examinations and in the development of his films, which resulted in radiograms and prints showing exceptional detail. In 1901 Dr. Chandlee enlisted in the Boer War and started for South Africa, his trip being sponsored by Boer sympathizers. He was to go by the way of Holland and take with him his X-ray apparatus. Upon reaching Holland he learned that the Boer War had ended and his plans for working in Africa were abandoned. While in Europe he took advantage of his opportunities by extending his surgical and X-ray studies in Berlin and London. He returned to this country with some new apparatus added to his own and a 10 mg. plaque of Radium which he expected to use in the treatment of superficial skin lesions. The results he obtained with this very small quantity of radium in epitheliomas about the face seemed little less than miraculous at that time.

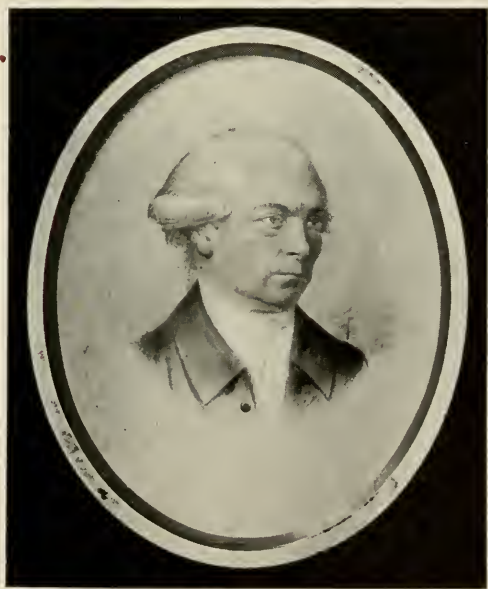
It is needless to say that the Roentgenological Department of the University Hospital took on new life under Dr. Chandlee's leadership. Within a year, the number of X-ray examinations increased over 300%, and more commodious quarters were provided in the rooms now occupied by the Pathological Laboratory. A new Snook transformer of the most modern type and a fluoroscope were purchased, both of which pieces of apparatus are still in use at the hospital. New Coolidge tubes replaced the old gas and hydrogen tubes, and the Roentgenological Department became second to none in the city. Dr. Chandlee was a man of unusual ability, he was modest and unassuming and always glad to teach others what he knew. His ceaseless activities and tremendous energy weakened his never too robust constitution, and in the spring of 1916, he developed a carbuncle of the neck, which caused his death on April 19, 1916.

Dr. Henry J. Walton, who had been Dr. Chandlee's assistant since 1911, and who had spent two years with Dr. Baetjer in the X-Ray Department at the Johns Hopkins Hospital, was then appointed Roentgenologist.

It was not long before the Department again outgrew its quarters; the work having increased to such extent that in the fall of 1916 it was necessary to move to the ground floor of the hospital, where double the amount of space was provided. Following this expansion there was a rapid growth in the department and within five years,

the work had increased about 150%. The increase in the number of patients and the demand for special apparatus made it necessary to again seek more room, and in 1922, the Roentgenological Department was moved to the first floor of the two adjoining buildings on Lombard Street west of the Hospital.

The next move of the Department will be to the second floor of the new Hospital soon to be erected, where modern facilities will be provided for still further developments in the undiscovered possibilities of the X-ray.



UPTON SCOTT

First President Medical and Chirurgical Faculty

BULLETIN

OF THE

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THE UNIVERSITY HOSPITAL

On June 10, 1823, the corner stone of an institution for the care of the sick was laid at the southwest corner of Greene and Lombard Streets, Baltimore, Maryland. This building when completed was called the Baltimore Infirmary, a cognomen that it bore for at least half a century. It was founded by the Faculty of the Medical School of the University of Maryland and not by the State, and it is believed to have been the first hospital owned by any Medical School in the United States, as well as the first general hospital in this city. It was originally a small building, having only four wards but additions were made from time to time which greatly increased its capacity. During the Civil War it was used by the Union Army as a hospital and tents were placed in the yard for the accommodation of sick and wounded soldiers. The hospital as thus established continued in existence until it was demolished in 1896, a period of 73 years. During this long term successive generations of physicians and surgeons served the cause of humanity and of science, within its walls and successive classes of students received their practical instruction in its wards. Here labored Davidge and Potter, imposing figures in their day; here Nathan R. Smith, familiarly called the "Emperor", shed luster on the hospital and school, for a period of nearly 50 years, by his surgical skill and his towering reputation; here William Power, and Charles Frick taught and wrought, but whose brilliant gifts could only be exercised for a limited period, when at a premature age they fell asleep. Dr. Power is said to have been the first to introduce auscultation.

tion and percussion into this city; while Dr. Frick was an original investigator in diseases of the urinary organs, whose observations are still held in high repute.

The elder Chew, the worthy sire of a worthy son; the courtly McSherry; Christopher Johnston, the surgeon and scientist; Julian J. Chisolm, the eminent oculist and teacher; the eloquent and chivalrous Miles; the genial Michael; all left their impress on the institution and on their students. Tiffany, the eminent surgeon, and I. E. Atkinson, the clinician, both learned and taught their art in the old Hospital. Samuel C. Chew, the scholar and the revered professor, lectured and taught here for almost 50 years. George W. Miltenberger, the great physician and obstetrician, established the obstetric department of the hospital, which has now attained to enormous proportions. Dr. William T. Howard, the first professor of gynecology in any medical school in this country, was a vast encyclopedia of professional lore which he imparted in a peculiarly impressive manner to his students. He was succeeded by Dr. Thomas A. Ashby, who introduced new methods in his department, and who was a veritable tower of strength in the institution. Charles W. Mitchell, the erudite and eloquent professor of pediatrics and clinical medicine, also was an ornament of the hospital.

My first acquaintance with the Infirmary was made on October 2, 1871, when I entered the University as a medical student, and I have had an almost continuous connection with it, in some capacity, until the present time. In 1876 the long Greene Street wing was built through the means of a Legislative appropriation. About 1890 another wing was built for a nurses' home but which is now occupied as an obstetrical hospital. A special building was erected in 1870 for resident students or internes and other changes were made from time to time; but the times changed, "*tempora mutantur, et nos mutamur in illis*". The old Infirmary had outlived its usefulness and new conditions confronted us. How shall these be met? On February 6, 1896, the first definite steps were taken in this direction. From the minutes of the Faculty of Physic of that date, I make the following extract. Professor Winslow moved: "That a committee of 3 members of the Faculty be appointed by the chair, whose duty it shall be to investigate as to the possibility and method of erection of a new hospital, and report to the Faculty upon the subject as soon as possible". The president appointed Professor Coale, the Dean and Pro-

fessors Atkinson and Winslow. This committee reported favorably upon the project and presented a plan of procedure, which was adopted by the Faculty.

The actual work of rebuilding was begun in August, 1896, and was completed in September, 1897. The old name of Baltimore Infirmary permanently disappeared from the buildings and that of University Hospital was graven over the imposing portal of the new structure. During the reconstruction of the hospital the services of the institution were greatly curtailed but by utilizing the two wings to their fullest extent and by renting several houses on Greene Street for private patients we were able to carry on the work reasonably well. Before the new building was occupied by patients the Faculty gave a large reception to the medical profession and other prominent citizens in order to give them an opportunity to inspect the handsome, new structure. In mentioning those connected with the erection of the new University Hospital it would be invidious to omit the names of Dr. St. Clair Spruill, Medical Superintendent, and Miss Janet Hale, Superintendent of Nurses, to whose active and intelligent cooperation much of the success of the undertaking was due. The first operation in the new building was performed by Professor J. Holmes Smith early in September, 1897, and from that time the work of the hospital rapidly increased. Since that time many additions and improvements have been made in the internal arrangements of the institution, which have greatly increased both the ability of the hospital to care for a larger number of patients and the introduction of the most modern methods of diagnosis and treatment.

Governor Edwin Warfield was greatly interested in the hospital and during his incumbency of the executive chair a substantial appropriation was secured from the Legislature, with which a new powerhouse and dormitory was erected; while a large and commodious Nurses' Home has been established across the street for the accommodation of the nurses, which in honor of the late Miss Louisa Parsons, who was the first Superintendent of Nurses, has been called the Louisa Parsons Home, which was opened in 1922.

With the erection of the new hospital, a new era in the life of the institution began, and, indeed, a new cycle in the history of the medical school took its start. Of all those who were connected with the undertaking the present writer alone survives though Dr. L. Ernest Neale, the learned and impressive professor of obstetrics, was ap-

pointed to his chair about that time and still lives to enjoy his "otium cum dignitate". Among those whose work is entitled to especial mention is the late Dr. Frank Martin and the late Dr. J. Mason Hundley, each of whom labored faithfully in the hospital.

The World War involved us in the struggle in 1917, and a large number of the staff entered the service of their country, leaving the hospital largely depleted of its physicians, surgeons, nurses and assistants but those of us who were too old for military duty or who were disqualified for one cause or another, continued to bear the burden and awaited the coming of a better day. The University of Maryland Unit or Field Hospital No. 42 returned in 1919, after having performed highly meritorious services in France and soon the gaps in the staff of our hospital were again filled.

In 1920 the Regents of the University of Maryland and the Trustees of the Maryland State College agreed to a consolidation in order to form a State University. This desire was presented to the Legislature and a bill was passed granting the petition, which was signed by Governor Albert C. Ritchie and the property of both institutions was turned over to the State.

The University Hospital is therefore no longer a private institution but is owned by the State of Maryland, and it derives great benefit from its change of ownership. This main building was built by the Medical Faculty, by means of an issue of bonds, which will fall due in 1936, and without any aid from the state. The only reminder of the old Baltimore Infirmary that is left is the flight of granite steps extending from the street to the first floor of the present structure; these steps after serving three-quarters of a century were found to be in such perfect condition that they were replaced and still give access to the building.

As far as is known there were no graduate resident physicians until 1846 when James Morison, M.D., was appointed and served until 1850. This Dr. Morison, however, must not be confused with Dr. James M. Morison, who graduated in 1859, and who entered the United States Army and served during the Civil War and through the Indian Conflicts and was commissioned a Brevet Major General for meritorious services. Only recently an oil painting of the General, his two swords and two of his commissions, have been presented to the Medical School and now hang in the Dean's office. In this connection, I may state that Dr. Philip S. Wales, who graduated in 1856,

served a term as Surgeon General of the Navy and that Dr. Rupert Blue, who graduated in 1892, entered the Public Health Service and after rendering heroic service in stamping out bubonic plague in California, was appointed Surgeon-General of the service and subsequently was elected President of the American Medical Association. All of these officers gained at least a portion of their clinical training in the Baltimore Infirmary.

Time and space do not permit the mention of many other physicians and surgeons who have obtained a large part of their training in the University Hospital, but I may call attention to the extraordinary skill of one of our more recent graduates who is now one of the chief surgeons at the Mayo Clinic, at Rochester, Minnesota. I refer to Dr. Fred W. Rankin, who has rapidly forged to the front and whose ability and skill are recognized at home and abroad.

The present hospital has a capacity of 250 beds and it is crowded to repletion, hence the Legislature of 1931 appropriated \$1,500,000 towards the construction of a new building, which will be able to house 400 patients. The plans have been drawn but work has not yet been started and I must leave the description of the projected institution to a future historian.

During the 109 years of the existence of the Baltimore Infirmary and the University Hospital it has faithfully served the citizens of this city and state and those of many other states as well, and its doors have never been closed. Its physicians and especially its surgeons have not only served without pecuniary compensation, but have ever been ready to answer the call of service, by day and by night. Without endowment and with but little aid from the city and state, it has been kept up, with a large degree of efficiency, by the successive members of the Faculty of the University of Maryland often with a large measure of self-denial. It is now the property of the State and already the dawn of a new era appears on the horizon.

RANDOLPH WINSLOW, M.D.

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The names listed above are our officers for the term beginning July 1, 1932, and ending June 30, 1933.

DR. WILLIAM S. GARDNER

The dinner given in honor of Dr. Gardner at the Baltimore Club on May 6th, 1932, was a fitting tribute to the man.

Dr. Gardner has been associated with medical education in Baltimore for a long time. Born in Athens County, Ohio, of clerical parentage, he received his early education in the Ohio Public Schools and graduated from the Nelsonville High School, after which he came to Baltimore and graduated at the College of Physicians and Surgeons, in 1885. At that time, the curriculum was very meagre, including very little upon the subjects of Bacteriology and Pathology, both of which Dr. Gardner immediately became interested in, and equipped himself to become an able teacher. He was resident physician at the Maternity Hospital in 1885-86, and at the City Hospital in 1886-87. It was during his residence at the Maternity Hospital and City Hospital that I became acquainted with him. Later joining his class and becoming his office student. It was then that I got to know Dr.



DR. GARDNER

Gardner very well, and became appreciative of his fine qualities both as a physician and as a student of literature. Lowell was his favorite, and he quoted Lowell to me until I became quite familiar with that poet.

In 1887 he married Miss Mary A. Maslin of Kent County, Maryland. From 1887 to 1893 he demonstrated obstetrics, with which subject he had become very familiar at the Maternity Hospital. From 1893 to 1905 he was associate professor of gynecology, and in 1905 he became professor of gynecology, a chair which he held until 1915. At this time the College of Physicians and Surgeons became a part of the University of Maryland. Dr. Gardner continued to occupy the chair of gynecology after the amalgamation and occupies it still, teaching his students the pathology of his branch with great intelligence and skill.

At the dinner given in honor of Dr. Gardner, eighty-four of the city's leading physicians and surgeons assembled to testify to his ability as a teacher and operator. Many of these men had been his former assistants and pupils and had had ample opportunity to judge the man. Their presence was a fitting tribute to Dr. Gardner's ability, both as teacher and operator.

Among the speakers at the dinner were Dr. J. M. H. Rowland, Dean of the University of Maryland, Medical School; Dr. John Ruhrah, Professor of Pediatrics at the University School; Dr. Charles Francis Blake, Professor of Proctology, and Dr. Julius Friedenwald, Professor of Gastro-Intestinal Diseases. Dr. Frank Dyer Sanger was toastmaster and Dr. Thomas K. Galvin had charge of the dinner.

FRANK DYER SANGER.

DR. DODSON TAKEN BY DEATH

Dr. William Walters Dodson, prominent physician and pharmacist of this city, died at the family residence on West Earle Street, October 30, 1931, following several months of declining health.

Dr. Dodson was born and reared in Abbeville County, near Donalds, and was a son of the late Milton A. and Margaret Kirkpatrick Dodson. He was a graduate of the Kings Mountain Seminary, later receiving his degree of M.D. from the University of Maryland. Twenty-five years ago he came to Greenville to live and was for a number of years associated with the Geer Drug Company, although he had retired from active work some years ago. Dr. Dodson was

well known throughout the state, having served on the State Board of Health at one time, and having for many years been an active member of the South Carolina Pharmaceutical Association.

Dr. Dodson was a member of the First Presbyterian Church of this city. He was also a member of all Masonic bodies, including the Hejaz Shrine Temple. His life was a beautiful example of patience and service to others.

He is survived by his wife, Mrs. Frances Stall Dodson; five children and four grandchildren.

COMMUNICATION

Uniontown, Pa., May 25, 1932.

ALBERT E. GOLDSTEIN, M.D.,
Medical Alumni Association,
University of Maryland.

Dear Dr. Goldstein: I received the Bulletin of the School of Medicine today and just read your message, as printed in the Bulletin. I want to congratulate you on the fine message that you have written and also wish to commend your efforts in the reduction of the Alumni indebtedness.

If suggestions or criticisms are in order, I would like to make one or more that I have observed. Since my graduation from the School of Medicine I have been to Baltimore to attend two Alumni affairs; namely, the Spring activities of 1928 and 1931. In 1928, I met at the Alumni dinner at least five of my classmates, and in 1931, I did not see a classmate the entire day I was there. I could not understand why someone who lives and practices in Baltimore, who graduated in my class, could not have been there.

In the mornings of Alumni Days, there seems to be nothing to do but to sit on the bench in front of the school and hope that someone will happen along that one can talk to. To remedy this condition, I want to offer the suggestion that professors or their assistants be in the adjoining laboratories to greet visiting alumni. It would be a great thing to go to the old physiology lab. or to the old anatomy lab. to see where one used to work. There should be someone in the new laboratories to escort visiting alumni and make them feel at home. I believe this suggestion could be carried out and entail no expense whatever. Next year, I hope my class will have their first reunion.

Wouldn't it be a pleasure to visit old familiar scenes with your classmates and have someone who used to teach us be there to shake hands? The morning would be well spent. One or more clinics could be held in the morning to help round out the day. When an alumnus from a long distance visits his school, he wants a *full day*, one that will bring him back again.

I have been a member of the Alumni Association ever since graduation. As I recall, few members of my class joined at the time of graduation. If you don't get them at graduation, there is little chance of ever getting them.

I will not be in Baltimore this year, mostly because of existing financial conditions, and too, I am planning on being there next year to attend the first class reunion (class of 1923). If there is anything I can do to help get members of my class to attend next year, I will be pleased to do it. I will do my share of letter writing if called upon. If an alumnus is unable to help his school financially, he should attend an occasional reunion. A large attendance makes a successful reunion. I want to offer this letter more as a suggestion than a criticism and also to show you that I am interested in my school.

Very truly yours,

C. FRANKLIN SMITH, M.D.,
47 S. GALLATIN AVENUE,
UNIONTOWN, PA.

*Member of University of Maryland
Medical School Alumni Association.
Class of 1923.*

DEATHS

- DR. JACOB SMYSER ALISON, Shamrock, Fla.; P. & S., class of 1896; aged 59; died, August 1, 1932, of coronary thrombosis.
- DR. THOMAS P. BENSON, Baltimore, Md.; class of 1898; aged 59; died, September 11, 1932, of a lingering illness.
- DR. EDWIN PAGE BLEDSOE, Sykesville, Md.; P. & S., class of 1905; served during the World War; Superintendent of the Springfield State Hospital; formerly Superintendent of Arkansas City Hospital, Little Rock, Ark.; Medical Director in charge of the U. S. Veterans' Hospital, North Chicago, Ill.; aged 51; died, August 11, 1932.
- DR. CARLETON H. BONNEY, Springfield, Mass.; B. M. C., class of 1895; aged 64; died, May 23, 1932, of cerebral hemorrhage and arteriosclerosis.
- DR. GEORGE EDWIN BUSH, Geneseo, Kan.; P. & S., class of 1888; aged 67; died, June 21, 1932, of strangulated umbilical hernia.
- DR. JAMES JOSEPH CARROLL, Baltimore, Md.; class of 1893; aged 66; died, August 29, 1932, of cardiac disease. He received his collegiate education at Calvert Hall and St. Charles College. He specialized in ophthalmology.
- DR. CHARLES CARLISLE CONSER, Baltimore, Md.; class of 1900; assistant professor of physiology at his alma mater; aged 56; died, August 6, 1932, of cardiac disease.
- DR. THOMAS ROBERT FRANCIS, Connellsville, Pa.; P. & S., class of 1908; member and for many years president of the board of health; aged 51; died, June 13, 1932.
- DR. CHARLES EPHRAIM FRENCH, Lowell, Mass.; class of 1893; member of the New England Ophthalmological Society and of the New England Otolological and Laryngological Society; aged 64; died, July 6, 1932, of shock following prostatectomy.
- DR. JAMES F. H. GORSUCH, Fork, Md.; class of 1876; aged 86; died, September 7, 1932. Doctor Gorsuch was a former president of the Baltimore County Medical Association and for many years the health officer of the 11th district of Baltimore County. He was a man of marked attainments and much beloved in his community.
- DR. IRA CALVIN HOFFMAN, Aliquippa, Pa.; P. & S., class of 1915; also a druggist; aged 56; died, July 18, 1932, of gastric carcinoma.
- DR. FRANK LEE HUGHES, Gibson, Md.; class of 1899; aged 58; died, August 28, 1932.
- DR. EDMUND DOZIER HUNTER, Norfolk, Va.; P. & S., class of 1901; aged 60; died, June 28, 1932, of chronic interstitial nephritis.
- DR. JAMES CLIFTON LUMPKIN, Baltimore, Md.; B. M. C., class of 1896; aged 62; died, September 12, 1932, of cardiac disease. Dr. Thomas Morgan Lumpkin, B. M. C., class of 1888, is a brother.
- DR. FREDERICK W. MANN, Houlton, Me.; P. & S., class of 1892 and of University of Bishop College, Faculty of Medicine, Montreal, Canada, class of 1900; past president of the Maine Medical Association; fellow of the American College of Physicians; aged 65; died, June 16, 1932.
- DR. GEORGE ALBERTSON PARKER, JR., Newton, Pa.; class of 1910; served during the World War; aged 49; died, July 15, 1932.
- DR. CHRISTOPHER BALTHUS PRESTON, Ashland, Ky.; P. & S., class of 1907; past president of the Boyd County Medical Society; aged 50; died, June 2, 1932, of carcinoma of the prostrate gland.

- DR. WILLIAM BROADUS PRITCHARD, Princess Anne, Md.; P. & S., class of 1884; formerly professor of neurology at the New York Polyclinic Medical School and Hospital, New York; aged 69; died, June 6, 1932, of chronic nephritis and chronic cardiac valvular disease.
- DR. WILLIAM H. ROUECHE, Erie, Pa.; B. M. C., class of 1895; aged 63; died, May 20, 1932, of cardiovascular renal disease.
- DR. ARNOLD AUGUSTUS SCHERR, Keyser, W. Va.; P. & S., class of 1903; served during the World War; aged 54; died, May 27, 1932, of coronary sclerosis.
- DR. CHARLES L. SCOTT, Sanford, N. C.; class of 1897; served during the World War as a major in the M. C., U. S. Army; aged 56; died, July 26, 1932, of sarcoma of the spine.
- DR. WALDEMAR J. SIEMINOWICZ, Chicago, Ill.; P. & S., class of 1893; also College of Physicians and Surgeons, Chicago, class of 1895; aged 72; died, June 13, 1932, of carcinoma of the rectum and chronic nephritis.
- DR. JOHN OSCAR SKINNER, Washington, D. C.; U. of Md., class of 1866; Lieutenant-Colonel, Army Medical Corps, retired; former Superintendent of Columbia Hospital; aged 87; died, September 12, 1932, of a long illness. Col. Skinner was born in Baltimore, May 4, 1845. He was a son of John J. Skinner and Emeline Jones Skinner. Col. Skinner attended the Sorbonne in Paris and took special courses at the University of Wurzburg, Germany, and the University of Vienna, Austria. During the Indian Wars, he was Assistant Surgeon in the Army and was one of the four officers who accompanied General Crook in his personal investigation of the Navajo-Apache country. He was United States Custodian of Geronimo during the Indian leader's imprisonment at Fort Marion, St. Augustine, Fla. Col. Skinner was presented the Congressional Medal of Honor in April, 1915, by President Wilson for services in the Modoc Indian War. He was Superintendent of the Columbia Hospital for 15 years before taking command of the United States Army Dispensary, Washington, during the World War. He was a lineal descendant of Lieut.-Col. John Jones; he sat at the court-martial of Aaron Burr. He was a member of the Indian War, Order of Carabao, American Legion, Optimist Club and the National Press Club.
- DR. LEONARD A. SLATER, Richmond, Va.; class of 1891; aged 63; died, May 19, 1932, of cerebral hemorrhage.
- DR. GEORGE S. STONE, Fort Myers, Fla.; class of 1890; past president of the Lee County Medical Society; aged 63; died, June 1, 1932.
- DR. GEORGE STROMER, Broussard, La.; P. & S., class of 1891; aged 71; died, May 8, 1932, of pneumonia.
- DR. GEORGE W. TODD, Salisbury, Md.; class of 1885; aged 71; died, May 27, 1932, of pulmonary tuberculosis.
- DR. WILLIAM T. WARRINER, Crewe, Va.; P. & S., class of 1871; Confederate veteran; aged 88; died, June 5, 1932, of chronic nephritis and myocarditis.
- DR. WILLIAM C. WERTZ, Reading, Pa.; B. M. C., class of 1904; aged 52; died, recently.
- DR. JOHN S. B. WOOLFORD, Roswell, N. M.; class of 1896; aged 60; died, July 4, 1932, of uremia superinduced by renal tuberculosis. Dr. Woolford was one of Roswell's most distinguished citizens and one of the most public spirited men who ever lived in Roswell. He gave freely of his time, money and ability toward the betterment of southeastern New Mexico. His work for the welfare of his adopted city and state will live as a monument to him. He stood for the better things of life and his work in the community has been indelibly written on the history of the city. In 1928 a signal tribute was paid him, when he was voted a trophy as the city's most useful citizen. Born in Maryland, in 1871, the doctor

later removed to Chattanooga, Tenn., where he established an enviable reputation as a surgeon. His health broke in 1918 and soon thereafter he removed to New Mexico. For three years after he went there, he was bed-ridden, and ever since that time required the use of a wheel-chair. He was one of the leading directors of the chamber of commerce since 1926, and early this year was re-elected president of the chamber for the third consecutive term. Unsalaries, Dr. Woolford devoted virtually all of his time to that organization and to his other principal interest—the Roswell Automobile Club, which was organized by him in 1926. Since that time he became the best-informed man in the southwest on highway routes and road conditions. He was president of the Fort Worth-Roswell-Los Angeles and of the Carlsbad Cavern-Petrified Forest-Grand Canyon highways, both of which he helped to develop. Though he had no official connection with the National Park service, he was intensely interested in the preservation of the Nation's natural monuments. He was an active member of the Rotary Club for four years, a member of the Chaves County board of education, the Girl Scout council; was president of the Roswell Sanitarium company and a fellow of the American College of Surgeons. The following editorial on Dr. Woolford's death is taken from the Roswell Dispatch of July 5, 1932:

DR. J. S. B. WOOLFORD

(Reprinted from Roswell "Dispatch" Morning Paper, Tuesday, July 5, 1932)

Yesterday afternoon the soul of a brave and a good man passed over the brink of that which we call life into a larger sphere.

He was brave because he carried on ever against tremendous odds, and he was good because he gave the best that was in him for his fellow man. Stricken during his early years and in the very midst of a great work, Dr. John S. B. Woolford carried with him through his remaining years and even to death's door that great purpose and smiling disposition which was so characteristic of the man.

Dr. Woolford belonged to the old school. He came of an illustrious southern family and that touch of southern chivalry was ever with him. He for many years was one of the most famous physicians and surgeons of the south.

His work in Roswell speaks more eloquently than anything which might now be said. Nothing can add to that illustrious part which he played in Roswell. For the first three years of his residence here he was bedridden. Then he took his torch in hand and for the past several years as president of the chamber of commerce, secretary of the Roswell Automobile Club, president of various highway associations, member of the Roswell Rotary Club and other organizations he worked in and out of season for the betterment of Roswell. His only hope of reward through it all was that which comes to any man from a realization of a job well done.

Outside of those actually connected with the Carlsbad Cavern Dr. Woolford was the greatest friend of this scenic wonderland. His ability was known over the entire west. He knew more about road conditions in the southwest than any other living man.

Highways became his hobby, after his days of surgery were over. His judgment was sought by old and young alike. He was kind, considerate and a real man wherever or in what capacity he might be found.

Dr. J. S. B. Woolford was a kind and considerate husband, a loving and generous father and a real friend. Roswell is today a better place in which to live because he directed his footsteps here and worked and lived with us.

Broken in body, his mind was that of a giant, keen, alert and tuned to the finer things of human life. He was always found on the right side of all public questions. He was truly a remarkable man, a man who was good to know. One always felt inspired and refreshed after talking to this man.

Dr. John S. B. Woolford was retiring, modest and unselfish. He possessed those traits which will linger long in the memories of those who knew him long after he is laid to rest at South Park—in the land which he loved and for which he gave so much.

Dr. Woolford's public service in Roswell was really a labor of love. He loved the city, and its people and he was never so happy as when he was working in the interests of this city.

In the passing of Dr. J. S. B. Woolford, Roswell has lost a valuable, dignified, and distinguished citizen, one whose place can never be taken. He was a man who inspired confidence and one who leaves behind him as a heritage to his family and his great host of friends a record of real achievement.

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Tear out and mail to Secretary, Medical Alumni Association, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.

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Vol. XVII

JANUARY, 1933

No. 3

BULLETIN
OF THE
SCHOOL of MEDICINE

UNIVERSITY OF MARYLAND



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All matter concerning the Alumni Association should be sent to Kenneth B. Boyd, M. D., Secretary of Medical Alumni Association, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.

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BULLETIN

OF THE

SCHOOL OF MEDICINE

UNIVERSITY OF MARYLAND

Vol. XVII

JANUARY, 1933

No. 3

THE HISTORY OF RESEARCH WORK IN THE BIOLOGICAL SCIENCES*

By FIELDING H. GARRISON, M.D.

BALTIMORE, MD.

Mr. President, Ladies and Gentlemen: My first military chief, a man of singular intellectual and moral courage, once said to a bore-some lecturer: My dear sir! No mortal man has the right to talk to people continuously for more than an hour's time! While appreciating the honor of appearing before you tonight, I need hardly remind you that no mortal man could hope to cover the theme assigned me inside of an hour. Biology, *Bios logos*, or, as it was once called, Natural History, is the science of everything appertaining to life. It is now synonymous with what Claude Bernard termed general physiology; in other words, it is to be differentiated from comparative anatomy and histology, which are concerned with dead structures and tissues only. The biological sciences, however, include embryology, developmental mechanics (experimental embryology and morphology), botany, experimental zoology, bacteriology, protozoology, mycology, human and comparative physiology, experimental pathology; all of the huge fabric of medical science which is not concerned with the *techne* or art of medicine, anthropology, ethnology and even such of the mental sciences, or *Geisteswissenschaften*, as human, comparative and ethnic psychology, sociology and so on. Fortunately for my audience, a detailed account of these things, even if delivered at the tempo of those passages in the scores of Richard Strauss which are said to move with the velocity of express trains, would prove so devastatingly

* Read before the University of Maryland Biological Society, October 18, 1932.

dry and dull that one's auditors would not be human if they failed to lapse into slumber during the stupefying recital. Fortunately too, for you at least, one can omit such technical phases of medicine as diagnosis, pathology, therapeutics, surgery, ophthalmology and the rest of the specialties. Even so, the best one can hope to do, as an act of charity, is to follow the ordinary rule of polite society, as expressed by the English poet:

"Skim like the swallow:
Seek not to follow,
Where earth is hollow
Under the earth."

The expression "research work in biology" carries two big implications: one of centuries of patient investigation, perhaps the most valuable and significant of all, by isolated, individual workers up to the time of Darwin and Huxley, Mendel and Haeckel; second, the immense output of detailed investigation by cooperative teamwork which has been going on in laboratories all over the world for the last half century or more. As to the extent and continuity of this team-work, we have not the slightest occasion to worry. Even in the Latin and Latin-American countries, it is very much of a going concern, so going, in fact, that were it suspended for a year, it is believed that the biologic confraternity would be better able to take account of stock, so as to find out where it is "at," in other words, to ascertain how much of this vast chaos of seemingly unrelated facts can be co-ordinated and made to function. In my last interview with the editor of *Biological Abstracts*, he informed me casually that he indexed no less than 6000 current periodicals per annum.

Descriptive biology was already a going concern in the prehistoric caverns, where the mural paintings and line engravings of animals on stone and bone are of startling realism, so accurate, indeed, that the creatures depicted are identifiable as to species. This is also true of the innumerable representations of animals and plants on the Greek and Roman coins. About this time, the first research work in biology was begun and done by Aristotle on the shores of the Ægean Sea. Aristotle was the son of a physician, and his method in research work was derived from the Hippocratic Canon, the original source and repository of the method of science in antiquity. During his five years residence off the island of Lesbos (347-342 B. C.) he studied and described the breeding habits of the cephalopoda, in particular the octopus, sepia (squid or cuttlefish) and paper nautilus (*Argonauta*

argo), and his findings were confirmed by Lacaze-Duthiers in 1892. His observations on the breeding habits of the catfish of the river Achelous were laughed at for centuries until they were shown to be true of the American species, 2200 years later, by Louis Agassiz (1856). His notes on the placental attachment of the young in viviparous dog-fish were discredited for 22 centuries until Johannes Müller confirmed them in 1842. Aristotle was the first to study the embryology of the chick in the egg, noted the first appearance of the heart (*punctum saliens*), the primitive streak, the phases of development on the 10th and 20th days and the arrangement of the enveloping membranes and their blood-vessels. He was the first to classify animals, dividing them into red-blooded or vertebrates (*enaima*) and bloodless or invertebrate (*anaima*), differentiated the vertebrates as oviparous and viviparous, introduced the concepts genus (*genos*) and species (*eidos*) included the whale and other cetaceans among the mammals, and constructed a kind of evolutionary scale or ladder of living beings from inanimate matter (protoplasm) to man. Aristotle's criterion of life was the possession of a *psyche* or soul, which is vegetative or sensory in plants and confined to capacity for nutrition, growth and reproduction. To the animal or sensory-motor soul, he added the power of motion and to the human or rational soul, the power of reason and rational behavior. In Aristotle's day, the word history (*historia*) meant originally the acquisition of knowledge by investigation, then, the knowledge obtained by such inquiry and finally the exposition of such knowledge. Natural history therefore, meant research work in biology and as Singer points out, the proper translation of Aristotle's *Historia animalium* would be "Zoölogical Researches". Even at this late date, Aristotle remains the greatest of all biologists. As a research worker, he was absolutely self-helping, with no preliminary training, no instruments, no literature, no adequate nomenclature, no learned contemporaries. He originated the idea of a library because he had none to consult. He frequently used anatomical drawings and diagrams, some of which can be reconstructed from his writings. He was a pupil of Plato, whose line of thought was idealistic and mathematical, and whose Academy was a grove of trees. Aristotle called his own school a Lyceum or "garden" and in it he was succeeded by his pupil, the physician Theophrastus, who was to do for the plants what Aristotle had done for the animals. Theophrastus collated the loose lore of the herb gatherers (*rhizotomi*) into a rational body of coöordinated knowledge, the first systematic

treatise on botany. This also is called a History of Plants; in other words, Botanical Researches or Investigations. As with Aristotle's treatise on generation, part of it is a scrap-book of folklore, and the mistakes of Theophrastus, like those of Aristotle, are due in part to natural credulity, but in the main, to defective nomenclature. Theophrastus' classification of plants is of the same fundamental importance as Aristotle's classification of animals.

In the Alexandrian period, 300 years before the Christian era, scientific anatomy was founded by Herophilus (280 B. C.), who introduced dissecting of the human body, a method unthinkable to the Egyptians; and first differentiated the arteries from the veins. With his contemporary, Erasistratus, he was the founder of neurological anatomy, and was the first to count the pulse with the water-clock and to analyze its rate and rhythm. Erasistratus distinguished between the anterior and posterior nerve-roots, saw the heart as a force-pump and was the first to investigate metabolism, by experiments in a jar-calorimeter of his own devising. Toward the beginning of the Christian era, Crateuas made the first drawings of plants from nature in his *Rhizotomikon*, which Singer has reconstructed. The botanical work of Theophrastus was carried on by the Græco-Roman army surgeon Dioscorides, who compiled the first materia medica; and in the Natural History of the elder Pliny. The classical period culminates in Galen, who greatly advanced comparative muscular anatomy by his dissections of the Barbary ape and neurological anatomy by his work on the ox; demonstrated the motor power of the heart, produced aphonia by cutting the recurrent laryngeal nerve, and virtually founded experimental neurology by his studies of paralyses produced by sections of the spinal cord at different levels. He wrote the first handbook of dissection, authoritative through the centuries. Much of this very respectable body of research work in classical antiquity, from Hippocrates to Galen, was done by the peripatetic or travel method which was to be so effective in anthropology, ethnic psychology, geographical pathology and some other branches of modern biology.

In the Dark Ages, covering a thousand years between the death of Galen and the 13th Century, nothing of consequence was done, beyond a few lists of medicinal herbs and stereotyped drawings of plants. Glancing for a moment at Albertus Magnus, who added a little to the embryology of birds and fishes and the description of

plants, we take a long leap forward to the great names of Leonardo da Vinci and Vesalius. Over and above his very life-like drawings of plants and of the structure of animals, Leonardo was the founder of physiological anatomy or the delineation of muscle in motion. The aim of his wonderful drawings, the finest specimens of anatomic illustration in existence, is to elucidate function, to get at the law behind the facts. The same tendency is exhibited in the illustrations of the *Fabrica* of Vesalius (1543), which was virtually the great textbook of anatomy for centuries and was defined by Osler as the foundation stone or point of departure of modern medicine. As Singer observes, Vesalius treats of the different structures and organs of the body individually and separately, but "he is always thinking of the body as a whole." In his full length figures, the skeleton and the muscles are often thrown into unusual postures, as if taken from a living model. Of this functional anatomy, of Leonardine or Vesalian type, Singer says:

"The habit of ever picturing the living figure behind the organ or the structure, places Vesalius in a class quite apart from the modern biologists. His power of vision, in making him a great creative biologist, made him, at the same time, a great creative artist. To understand Vesalius, we must try to rid ourselves of certain ideas which come to us from education. We must think like Renaissance artists, and not like modern men of science."

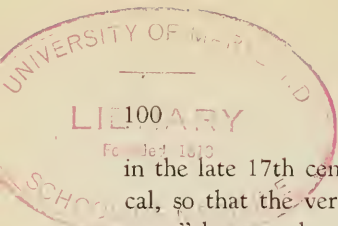
Leonardo's scientific work was overshadowed by the glory of his genius in painting, and went unappreciated for centuries, but the effect of Vesalius upon biologic research was immediate and decisive. His second edition (1555) confirms the physiological experiments of Galen, shows that a quiescent heart can be resuscitated by the bellows, and contains the vague beginnings of comparative craniology and psychology. Everywhere, the biologists of his time saw the animal body as a *fabrica*, a working machine or factory (Singer). Somewhere and somehow, Servetus got at the real inwardness of the pulmonary circulation. Harvey's teacher, Fabricius, demonstrated the valves in the veins. Belon has a cut comparing the human skeleton with that of a bird. Rondelet checked and confirmed Aristotle's findings on marine animals and first illustrated the comparative anatomy of invertebrates by his drawing of a dissected sea urchin. In 1575, Volcher Coiter published the first important book on comparative osteology, showing, in a single plate, the homologous relations of skeletons of the pig, parrot, hedgehog, mouse, mole and frog. In his

drawings of the organs of sense, Casserius habitually studied these structures in a long series of different animals. This great Paduan tradition of comparative anatomy, transmitted from Vesalius to Harvey and Casserius by Fabricius, was broken up by Casserius' successor at Padua, Spigelius, who created a definite dissociation between comparative anatomy and the formal human anatomy of the future medical schools. Meanwhile, the accurate delineation of hundreds of plants went forward in the many editions of the *Gart der Gesundheit* and its successor, the *Hortus sanitatis*, which antedates and compares favorably with the folios of the German fathers of botany, Brunfels, Bock, Fuchs, Cordus, and their many French, English and Italian contemporaries. From these, it is but a step to the great encyclopedic naturalists of the 16th century, of whom the Swiss, Conrad Gesner, is the most memorable, important and outstanding figure. He was the first bibliographer of general literature on a grand scale, setting the pace for such huge library catalogues as that of the British Museum; made a pocket dictionary of known plants, and compiled the first great encyclopedia of zoology after Aristotle, in five volumes, covering 4500 pages in folio with 1000 illustrations. As the pioneer in Swiss mountain climbing, he is the patron saint of all Alpine clubs, and it is customary to say, as a piquant evidence of his versatility, that he was also the first to describe the canary bird. Associated with the memory of Gesner is a long list of physician botanists and zoologists, notably Aldrovandi, Bauhin, Anguillara, Ruelle, Brassavola, Mattioli, Dodoens, della Porta, and Cesalpino. With the acute but not entirely consistent speculations of Cesalpino on the circulation of the blood, the time was ripe for Harvey, who attained to manhood in the transition period between the 16th and 17th centuries.

Harvey did better than merely to discover the circulation of the blood. He demonstrated it by convincing experiments, conveyed in a well-reasoned argument, the chief merit of which is that it is mathematical. In less than half an hour's time, more blood is pumped through the heart than is contained in the body, whence its return to the heart by the venous route becomes a logical necessity. This was the first time that the idea of measurement was employed in any biological investigation of magnitude, and it was from this viewpoint that Harvey's demonstration became the starting point of modern experimental physiology. It was followed by a long row of anatomical investigations, each of salient physiological significance, from the dis-

covery of the lacteals and lymphatics by Aselli, Pecquet and Bartholinus (1622-57) to the duodenal glands of Brunner (1682). The Paduan tradition of comparative anatomy was still upstanding in monographs describing the dissections of many different animals by Claude Perrault, Edward Tyson and Antonio Vallisnieri. In 1681, Nehemiah Grew published a study of the stomach and intestines in thirty-five different species.

Meanwhile, a new world of investigation was opened up by the invention of the microscope. In 1658, Athanasius Kircher described what he took to be micro-organisms in the blood of bubonic plague, in all probability rouleaux of red blood corpuscles, pus cells and such larger microorganisms as were visible with his 32-power microscope. In the same year (1658) Swammerdam discovered and described the red blood corpuscles and, in his *Bible of Nature* (1669) published drawings of the finer anatomy of the bee, the mayfly, the snail, clam, squid and frog, which surpassed all others in delicacy of execution and accuracy of detail. Malpighi completed Harvey's demonstration by his discovery of the capillaries (1660), added greatly to Harvey's great *Arbeit* on the embryology of the chick (1651), and began an epoch by his work on the histology of the liver, spleen and kidneys (1666). Leuwenhoek was the first to see and describe protozoa (1675) and bacteria (1683) under the microscope; published the first complete account of the erythrocytes (1674) and demonstrated the capillary anastomosis of Malpighi in a most effective drawing. Hooke and Grew made countless drawings of unmistakable plant cells, without realizing their significance. The comparative histology of animal parasites was advanced by Edward Tyson and descriptive botany by Ray, Rivinus and Tournefort. Descartes published the first formal textbook of physiology (1662) and described reflex action in his book on the passions of the soul (1649). At the age of sixteen, Descartes meditated a treatise on fencing, but he was destined to establish some of the basic postulates of scientific investigation by his *Discourse on Method* (1637) and, in the same year, to give experimental biologists a powerful weapon in the plotting of curves employed in his analytical geometry (1637). In the 17th century, mathematical physics, which Macaulay termed "the highest reach of human thought", attained to one of its greatest heights in the *Principia* of Newton (1687), who, in 1665, discovered the law of gravitation and the binomial theorem, demonstrated the parallelogram of forces (1687) and, with Leibnitz, introduced the differential and integral calculus. The trend of thought



in the late 17th century became mathematical rather than metaphysical, so that the very God of the 18th century period of "enlightenment" became the mathematical or geometric God (*Theos geometricus*) of Pope's "Order is Heaven's first law". The Iatromathematical School of physiologists included Descartes himself, Borelli who explained the different physiological functions in terms of mechanism, Baglivi, and Sanctorius, who was the first experimenter on metabolism after Erasistratus. Timing the pulse by the pendulum and the pendulum by the pulse was known to Kepler and Galileo, who also introduced a rude thermometer. The physiology of vision was elucidated in terms of physics by Kepler, Descartes, Mariotte and Scheiner. The physiology of respiration was developed as a chemical process by Boyle, Hooke and Lower and ably elucidated by their junior, John Mayow. Extraordinary pioneer work on the physiology of digestion was done by de Graaf (Holland), Peyer and Brunner (Switzerland), while Croone and Stenson made valuable additions to muscular physiology. All in all, the 17th century was most outstanding in biological research, and here even such novel devices as the calculus or analytical geometry were destined to be powerful coefficients.

The four great physician-biologists of the 18th century were Linnaeus, who established the binomial nomenclature by generic and specific names and whose descriptions of animals and plants surpassed all predecessors in accuracy and concision; Haller, who made unrivaled bibliographies of anatomy and botany, who, by 567 laboratory experiments, established the Glisson doctrine of irritability in living tissues, differentiating nerve impulse (sensibility) from muscular contraction, and following in the footsteps of his fellow countryman, Conrad Gesner, made the Alps a theme in English poetry (Coleridge, Byron, Matthew Arnold); Caspar Friedrich Wolff, whose great work on the development of the intestines (1768) joins hands across the ages with the researches of Harvey and von Baer; and John Hunter, the first great experimental surgeon, who greatly forwarded biological investigation through his creation of the Hunterian Museum of 13,000 specimens, his dissections and descriptions of some 500 different species of animals and his innumerable observations on vital heat in animals and vegetables, electric fishes and the regeneration and transplantation of tissues. To rival the industry of such great physician naturalists as Haller and Hunter, one has to turn to such moderns as Johannes Müller in Germany or Joseph Leidy in America. The mechanics of the movement of sap in plants and of blood-pressure was first in-

vestigated by a clergyman, Stephen Hales. The chemistry of digestion was forwarded by Réaumur and Spallanzani, the coagulation of the blood was first investigated by William Hewson, reflex action by Robert Whytt, and following the discovery of the atmospheric gases CO_2 (Black), hydrogen (Cavendish), nitrogen (Rutherford), and oxygen (Priestley, Scheele, Lavoisier), the modern doctrine of the physiology of respiration was completed by Black, Priestley, Lavoisier, Laplace and Lagrange, in other words, by three chemists and two mathematicians. Electrophysiology came into being through the epoch-making experiments of Galvani (1786-92) and Volta (1792), while most significant work on the physiology of the nervous system was done by Prochaska (Vienna), Unzer (Halle), Real (Halle) and a remarkable group of French neurological surgeons, Pourfour du Petit, Antoine Louis, Lorry, Saucerotte and Mehée de la Touche. At Göttingen, Haller first exploited the medical society, the medical periodical and the medical library (medical bibliography) as a means of forwarding investigation. With the creation of scientific societies and medical periodicals in the 17th century, the power of the universities began to wane and was destined to pass to the scientific institute and laboratory by way of the scientific academy. Another instrument of investigation, destined to be of importance in biologic research, was statistics, first applied to the enumeration of births, marriages and deaths in the 17th century by Graunt, Petty and Halley, to public hygiene and national polity by the Prussian Army chaplain Süssmilch, to the data of internal medicine by Louis, and to anthropometry and social phenomena (demography) by Quetelet. The culmination of this tendency was the establishment of the new science of biometrics by Francis Galton and Karl Pearson, with its remarkable applications to eugenics, genetics, criminology, demography, and military medicine by Davenport, Raymond Pearl, Love and others. Blumenbach and Pieter Camper were the founders of anthropology and craniology. The mathematical bent of the 18th century crops out in the investigations on the mechanism of vision, astigmatism and color vision, by Thomas Young, whom Tscherning called "the father of physiological optics". Early American contributions were those of Benjamin Franklin on bifocal spectacles, electrotherapy (Franklinism), sleep, deafness, nyctalopia, and the death rate in infants; John Clayton on the flora of Virginia (the first American book on botany) and the *Materia Medica Americana* (1787) of the Anspach-Bayreuth surgeon Schoepff. Experimental morphology of a very modern kind was done

on lizards, hydrazoa and other animals, by Spallanzani, John Hunter, Réaumur, Trembley, Bonnet and Henry Baker. Quite apart stands the great name of Goethe whose discovery of the intermaxillary bone (1784-6) and whose investigations on the metamorphosis of plants (1790) were of fundamental importance in the speculative period of the rise of evolutionary doctrine.

In order to understand how modern biological research has been variously helped or hindered by speculation, let us consider the mental approaches of intellectuals of the *Aufklärung* or period of "enlightenment". The 18th century was an age of preconceived ideas, in which manner and manners were preferred to essential matter of fact, forms, and modes of thought to the substance and real inwardness of things. It was the age of theories and systems; in other words, of superficial approaches in lieu of depth of thought. Everybody had a definite place in the social scheme, in which he was expected to remain, a pattern of life to which he had either to conform or go out of business. Occupations were inherited from father to son and were actually associated with definite costumes, mannerisms and vocal intonations. The program of enlightenment, controlled by a virtual despotism of the élite, was rational, utilitarian, and pragmatic, turning upon a rigid belief in the perfectibility of the human species and the acceleration of this end by the artificial creation of a receptive audience. Even the great physicians of the time stood upon pedestals made up of pet theories and secret remedies all their own. The experiences of Dr. Johnson at Chesterfield's door, of Mozart with the Archbishop of Salzburg, of the population of France before the Revolution, will convince anyone that this was the great age of Olympian high-hatting, and in this period, as Oliver Goldsmith observed, snobbery, "the mean admiration of mean things" was born. Even in a Victorian country house, Thomas Henry Huxley overheard the following sentence in a family prayer: "O Lord, in Thine infinite wisdom and mercy, make me respectful to my superiors, affable to my equals and condescending to my inferiors." The cat-like grin upon Huxley's face as he listened in on this astounding utterance, is the sort of thing that endears this splendid leonine man in our hearts above all other scientific men. As Aristotle's Ladder of Life made man the summit, measure and litmus test of all things in creation, this gradation, thrown out by the great Greek naturalist as a speculative concept, was erected by the 18th century naturalists into rigid dogma. Bonnet insisted upon the preformation of the embryo, even as the later naturalists believed in an

archetypal animal and Oken maintained that "Ideally every child should be a boy". The blithe optimism of the 18th century shines out in the dictum of Leibnitz: "All's for the best in the best of possible worlds", which was ridiculed in Voltaire's *Candide*. Alone among the 18th century anatomists, Vicq d'Azyr maintained the grand old comparative method of Paduan tradition, for even Hunter was under the spell of the Aristotelian ladder, which was, in fact, a precursor of evolutionary doctrine. The object of Hunter's Museum was to illustrate gradations of structure and function through the whole series of 500 animals, dissected and elucidated by him. A new line of thought was opened up by the philosophy of Kant, which aimed to dissociate and, at the same time, to reconcile and conciliate the brass tacks world of phenomena and experience known to scientific men and the conceptual world of the real inwardness of things, which is forever beyond our ken. In other words, is there meaning and purpose in the natural, material world as we know it, or is it a chaotic, meaningless, blundering, if mechanical attempt of "clumsy old Dame Nature" to express herself, "a thing of sound and fury", as Prospero saw it? Is teleology, Galen's attempt to answer the question "why", the enemy of science? Kant, and with him, the later German romantics, believed that in the inmost heart of Nature, there is a common point at which the materialistic and teleologic aspects of things are fused and reconciled. Today, we accept Spinoza's denial of final cause and simply affirm that it is given us to ask "how"; it is imbecile to ask "why". The victim of an incurable disease, the mother beside her dying child, the native bitten by a cobra or mauled by a tiger in the jungle, or any other victim of the slings and arrows of outrageous fortune, cries vainly "why?" And just here, man is, as the poet affirms

"An infant crying in the night,
And with no language but a cry."

A provisional answer to this fundamental human problem is afforded in the epoch-making work of Charles Darwin, which forever annihilated the notion that man is the central basic lord of creation, even as the Copernican system of astronomy obliterated the idea that the earth is the center of the solar system. The Linnaean concept of the fixity of species disappeared, the comparative attack of Paduan tradition was applied to evolutionary development, and following the establishment of the cell theory by Schleiden and Schwann, the close structural and functional relationship of animal, human and vegetable

tissues came to be perceived and a host of new sciences—cellular and comparative embryology, histology and pathology, bacteriology, protozoology, mycology, experimental embryology and morphology, came into being. It is at this point that biologic research by cooperative team-work in laboratories begins to loom large.

What was the principal gap in Darwin's reasoning? It is contained in his fixed belief that *Natura non facit saltum* (the old Aristotelian ladder of gradation) and the comment of Huxley that Darwin understood morphologic species but had no notion of physiologic species. From first to last, Huxley maintained that the foundations of natural selection are insecure, that there is nothing in natural and sexual selection unless experimental selective breeding can be made to produce species. With prophetic insight, Huxley anticipated Mendel by referring the spontaneous birth of short-legged Ancon sheep and six-fingered children to what he called "the doctrine of transmutation". The interest of Mendel's great memoir on mutation, or the spontaneous, discontinuous origin of species is, that, like Willard Gibbs' memoir on chemical equilibrium, it lay buried for decades and came to be used as a guide in research after some of its findings had already been confirmed in laboratories. Mendel, an Augustinian monk, Abbot of Brünn, turned his monastery-garden into an outdoor laboratory, experimenting on hybridity in peas. His findings on the crossing of species are actually expressible in terms of Newton's binomial theorem: $(a + b)^2 = a^2 + 2ab + b^2$. With the statement of the doctrine of mutation by deVries (1901) came Johannsen's demonstration that a pure line of descent can be developed automatically and maintained indefinitely in such self-fertilizing plants as beans, in which case natural selection is non-effective and non-essential. Out of mutation came the creation and development of the new science of genetics by Bateson, Castle, Morgan and others and the outdoor experiments of Pearl, Burbank and other scientific breeders of species. With this mechanistic view of heredity, biology ceased to be speculative and settled down to the experimental or dynamic phase. Huxley and Mendel made experimental embryology the arbiter of developmental and structural relationships in plants and animals (Singer).

The 19th century was the period in which scientific research became definitely organized, both as to directives and objectives. The earliest prime mover of organized biologic research was Lorenz Oken, a Suabian, who founded the first biological journal (*Isis*, 1816-48), anticipated the cell-theory and the separation of the phylum *Protozoa*,

and in 1821, called the first meeting of the Association of German Natural Historians and Physicians (*Gesellschaft deutscher Naturforscher und Aerzte*), which was followed, ten years later, by the York meeting of the British Association for the Advancement of Science (1831). To this early period, which was still the period of the isolated, independent investigator, belong the great embryologist von Baer, such anatomists as Bichat, the Bells, Henle, Hyrtl, Wistar and Leidy, such physiologists as Magendie, Legallois, Flourens, Poiseuille, the Webers, Marshall Hall, Sharpey, and in America, Beaumont, whose elucidation of gastric digestion was the first important contribution of our country to the subject. Of the comparative anatomists, Lamarck is now associated with the doctrine of the inheritance of acquired characters, an extension of Galen's theorem that "structure follows function" (*La fonction fait l'organe*), which has found some apparent confirmation latterly. Cuvier created the science of fossil forms (*palaeontology*) and introduced the doctrine that the parts of an organism are correlated with the whole, whence the structure of an entire fossil can be reconstructed from some fragmentary remains. This idea, which, as Singer observes, is fundamental in most detective stories, was brilliantly developed in the restorations of fossil creatures by Sir Richard Owen in England and by Leidy, Cope and Marsh in America. Leidy, the last of the great all-round naturalists of the type of Conrad Gesner and Johannes Müller, is easily the foremost figure in American developments of biological science.

The second great prime mover of biologic investigation in Germany was Johannes Müller, who was indeed the founder of modern German scientific medicine, numbering among his pupils no less than Schwann, Henle, Kölliker, Virchow, Helmholtz, Du Bois Reymond and Brücke, who were, in their turn, prime movers in embryology, histology, cellular pathology and experimental physiology. Müller himself did all things well, was equally eminent in comparative anatomy, morphology, physiological chemistry, pathology and psychology. Between 1847 and 1852, Helmholtz applied the principle of conservation of energy to all physical and chemical processes, showed that the muscles are the source of animal heat, measured the velocity of the nerve impulse and invented the ophthalmoscope. From this time on, physiologists began to think in terms of physics and chemistry. Independently of Helmholtz, Carl Ludwig made investigations of the most varied yet fundamental kind and became the greatest teacher of physiology who

ever lived, turning out over 200 pupils from all over the earth, most of whom became in their turn, outstanding leaders. There is much in the dictum of Haidenhain that "Ludwig was the only physiologist who ever did anything." He had the essential qualities of a great general, turning his pupils into capable investigators by putting them upon real problems of fundamental importance, which carried out his own ideas. He usually mapped out all the details and sometimes wrote out the final draft of their monographs himself. With Ludwig began the period of cooperative team-work in laboratories, humanized by his basic idea of a "*schöne Gemeinsamkeit*". In France, Claude Bernard developed experimental medicine, or the artificial production of disease as an altered or deflected physiologic process. His work on the glycogenic function of the liver and on fourth ventricle diabetes led to the doctrine of the correlation of the internal secretions and thence to endocrinology. The body was no longer envisaged as a bundle of organs with one separate function each, but as made up of parts and organs correlated with one another and with the whole organism. Pasteur, a chemist, investigated the diseases of wine, beer, silkworms and sheep (anthrax); in other words, things affecting the essential industries of France. He became in this way interested in micro-organisms, and through his studies of attenuated viruses and preventive inoculations against rabies, became virtually a physician, incidentally one of the founders of bacteriology, which became a full-fledged science through the technical devices and scientific discoveries of Koch. The Pasteur Institute in Paris and the Koch Institute in Berlin became great centers of cooperative investigation.

From the date of the laboratories established by the Bohemian physiologist Purkinje at Breslau in 1824 and the physiological chemist Liebig at Giessen in 1825, there has been a steady rise of laboratory and institute foundations down to the present time, notably those established by the pharmacologist Buchheim at Dorpat (1849), Virchow at Berlin (1856), Bowditch at Harvard (1871), Schmiedeberg at Strassburg (1872), Pettenkofer at Munich (1879), Welch in Baltimore (1884), Pasteur at Paris (1888), Pavloff at Leningrad (1890), Koch at Berlin (1891), Kitasato at Tokyo (1892), Mosso at Turin (1894), Ehrlich at Frankfort (1896), and so on down to the opening of the Rockefeller Institute in New York (1901), and subsequent foundations.

To tell the story of the developments implicit in these new depar-

tures—how Friedrich Wohler's simple artificial synthesis of urea by heating ammonium cyanate (in 1828), led to the present gigantic scale of experimentation in biochemistry and metabolism, how Pavloff's work on conditioned reflexes led to the behavioristic view of conduct, how comparative physiology and psychology, anthropology, sociology and so many other phases of biologic science were developed—is quite beyond the scope of the present address. Even more so, the vast amount of work which travelling biologists have done and are doing on ecology, oceanography, the distribution of animal life over the earth and in the depths of the sea.

A glance through Minerva, with regard to the enormous number of existing biological laboratories, institutes and suchlike foundations over the globe—in the Soviet dominions, in Latin America, the far East, North Africa, and the remote islands of the Pacific, will convince any candid observer that the principal drawback and danger is overproduction and that of the making of biologic books and periodicals there is no end. An English physician visiting Baltimore informed me that far less importance is attached to research work in Great Britain than in Germany or America, since the essential quality and ultimate value of such work must not unnaturally depend upon the calibre and capacity of the research worker. There are many well-endowed laboratories and lengthy files of bulky periodicals which have little to show beyond meaningless *Filigranarbeit*, turning upon what Ostwald called "illusory problems" (*Scheinprobleme*), of which the criterion is: suppose the problem solved; the result will not be of the slightest use or consequence to humanity. There are laboratories in which the workers follow their own inclination after the fashion of the young woman in Stephen Leacock's humoresque, who mounted a horse and rode furiously in all directions. The outcome can only be *Scheinwissenschaft* or "illusory science". There is also pith in the humorist's account of a species of scientist who is fain to "startle two continents by stating a self-evident fact in a novel manner". In Germany, investigators of this particular type and stripe are dubbed *Wissenschaftler* or pseudo-scientists.

Again, the vast periodical literature of medicine, which includes much of the category of "biologic research" is clogged by endless copying and repetition. The late Professor Minot once affirmed that the Index Medicus is mainly "a repository of trash". A foreign professor who had requested a list of American authorities on thera-

peutics from H. C. Wood, exclaimed: "In God's name, who *are* all these people? I never heard of a single one of them." Yet it is highly probable that each and every one of them was an estimable authority on his subject in his community, enjoying the local prominence which is sometimes mistaken for eminence.

The views just enumerated have, of course, the humorous tendency of purposeful exaggeration, like the remark of Clausius to the young Willard Gibbs, when he announced his membership in the Connecticut Academy of Arts and Sciences: *Die Mitgliedschaft dieser Akademie wird ziemlich wohl ausgebreitet sein*. Nevertheless, they do indicate that aside from the immense fabric of popular scientific literature, there is too much of aimless researching and writing on general biology and its branches, and that the final worth and value of a biologic investigation will depend upon the man behind the guns. There must be not only competence and discriminating intelligence in the pupil or assistants, but the chief or director must possess the *Blick* or *coup d'oeil* of an experienced military commander as to strategic and tactical planning, and so never select a theme for investigation which is futile, insignificant or absurd.

The toast of the London Mathematical Society was: To pure mathematics; may its findings never be of the slightest use to anybody. But these ironical gentlemen were well aware of the fact that the possible developments of pure mathematics, of multiple algebras and suchlike, are endless and that not a single branch of mathematics has ever been seriously developed without practical intention, such as to elucidate the properties of a moving charge of electricity or the radiation of electricity from the surface of a sphere.

Even Einstein studied and developed a very difficult branch of mathematics for the sole purpose of working on problems in relativity.

Ladies and Gentlemen: It would be difficult to convey the dismal sensations I have and have had in attempting to outline this immense and multiplex theme. I feel deeply grateful for your exemplary patience, as I have been encouraged, rewarded and sustained by the light of your countenance.

NOTE ON THE CONGENITAL ABSENCE OF A PORTION OF THE RIGHT DIAPHRAGM IN A DOG*

By MAURICE FELDMAN, M.D., SAMUEL MORRISON, M.D.,

and

GRANT E. WARD, M.D.

BALTIMORE, MD.

Diaphragmatic herniae are not infrequently observed in humans and usually they are found to be more common on the left side because the liver prevents right herniation in most instances. These herniae are either congenital or acquired. However, a hernia which occurs from a congenital absence of a portion of the diaphragm is a rather rare anomaly, although there are reported cases in man in which the entire diaphragm was found absent.

Our interest was aroused in this form of hernia while experimenting upon dogs. The occurrence of diaphragmatic hernia in this animal is extremely uncommon not only in our own experience (which includes a large number of dogs) but also in the experience of other laboratories.

In the course of our experimental work it was observed that the administration of ether to one of our dogs was extremely difficult to maintain at a desirable depth of anesthesia. The dog seemed to vary from dangerous complete anesthesia to a state in which he was almost entirely awake. Suddenly, without any apparent reason, the animal's respirations ceased and though his heart continued to beat, first aid was without avail. The fact that the experimental operative procedure had hardly even begun was evidence enough that death could not be attributed to such a measure.

On further investigation at autopsy a most striking and interesting anatomical variation from the normal was found. The picture to be described in brief, is so rare that we thought it worthy of publication.

We had already observed a displacement of the liver to the left when our abdominal operative incision was made. At autopsy the thoracic and abdominal cavities were exposed at the same time. About 1000 cc. of a thin, yellowish serous fluid, transudate in character, was found to be present in the serous cavities. There was no obvious primary source from which the fluid could have originated. The liver

* This observation was made while experiments were being done under the Julius Friedenwald Research Fund of the University of Maryland.

was displaced entirely to the left and there was an absence of a considerable portion of the bowel from the abdominal cavity. Upon further investigation most of the small intestine (jejunum, ileum), and a portion of the proximal colon (cecum, ascending colon and part of the transverse colon) were found in the right thorax apparently enclosed in a serous membrane (i. e. peritoneal sac). (See

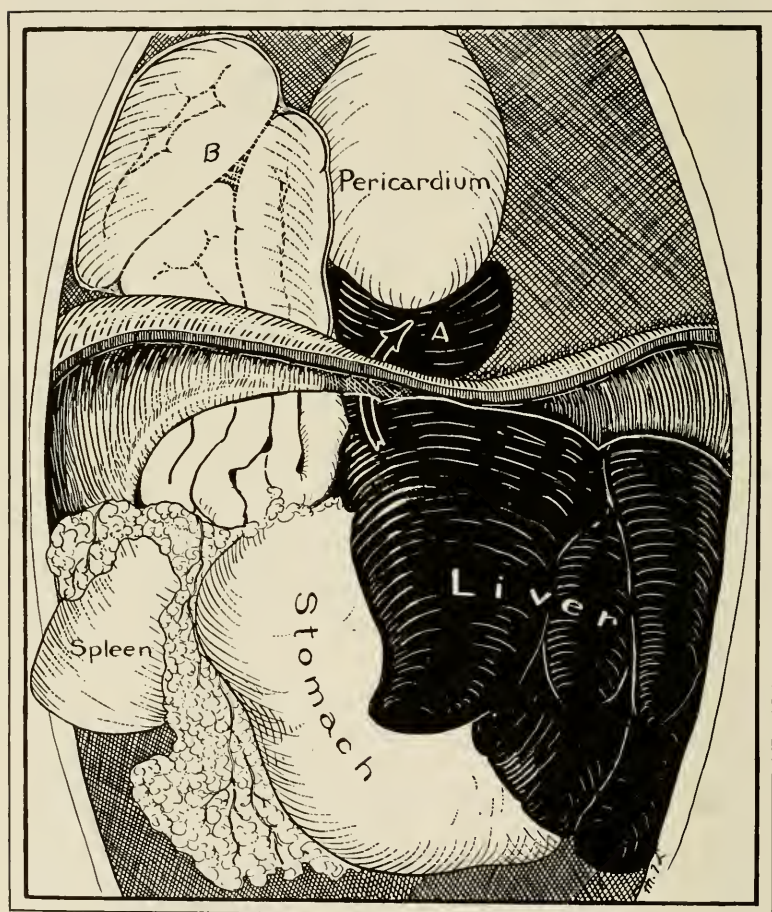


FIGURE 1

Illustrates the colon and small intestine and right lobe of liver herniated into the chest cavity. A. liver, B. Colon and small intestines.

Note that the liver is displaced to the left; the stomach and spleen lying behind the liver were brought into view. The spleen was behind the stomach and was brought out to the right in the drawing.

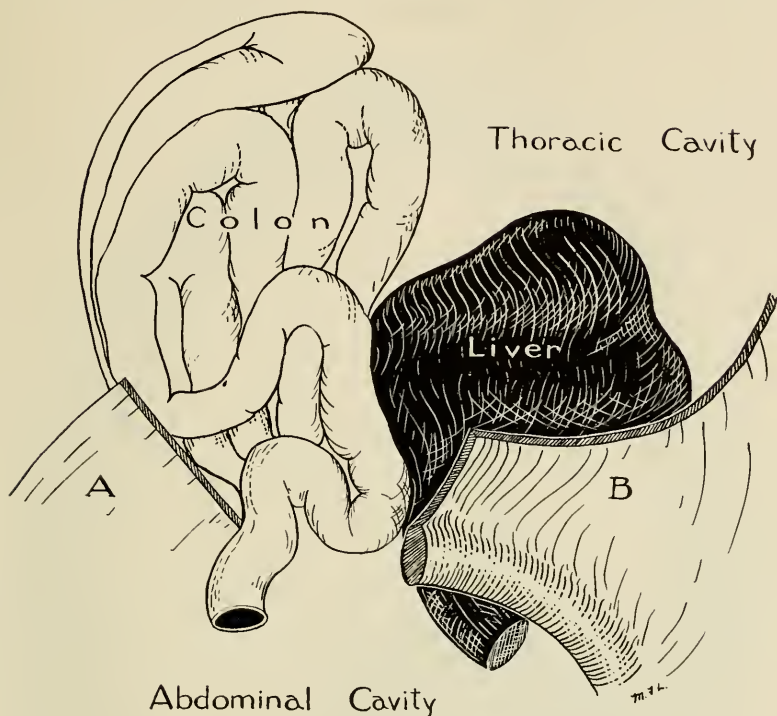


FIGURE 2

The cut diaphragm, showing the colon and small intestine and right lobe of the liver through the hernia opening.

Figures 1 and 2.) For a moment we were confused by the presence of a tissue resembling spleen which was in a position just beneath the heart in the thoracic cavity. Closer study verified the structure of this tissue as the right lobe of the liver. It was discolored and hard and instead of having the usual hepatic appearance it had taken on a mottled greyish color.

On dissection of the diaphragm it was found that the posterior aspect comprising about $\frac{1}{3}$ of the right diaphragm was absent. (See Figure 3.) There was no attachment of the diaphragm to the posterior wall but it was found attached in the midline and to the lateral wall of the chest. The free margin of the diaphragm representing the anterior aspect of the hernial opening showed a markedly thickened and rolled edge. This opening admitted four fingers easily and through it, therefore, the intestines and liver, as above described, had herniated. The right lung was collapsed due to the herniation.

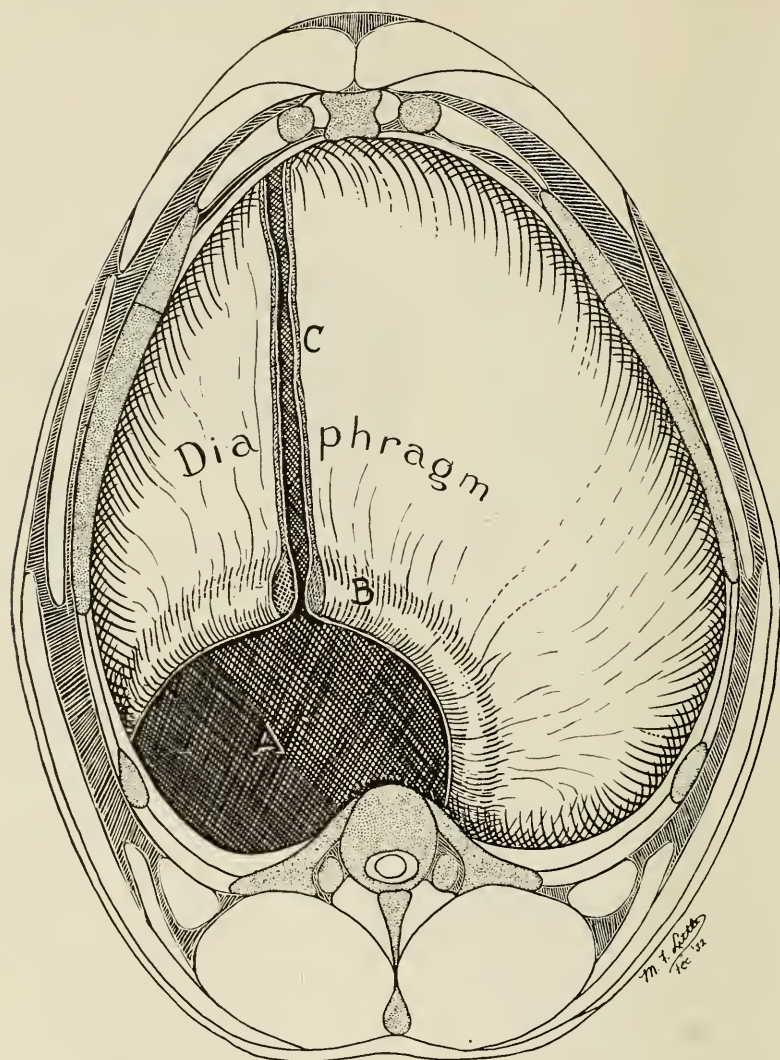


FIGURE 3

A drawing of the dissected diaphragm, illustrating the hernial opening in the posterior aspect at "A". "B" shows the markedly thickened rounded edge; "C" the cut diaphragm to illustrate the thickened edge at "B".

CONCLUSION

We have reported a rare anatomical anomaly in a dog. Its nature proved to be a congenital absence of a large portion of the right diaphragm with a resulting herniation of intestines and liver into the thoracic cavity. Coincidentally, it may be mentioned that this is also a rare condition in humans, especially on the right side.

THE HERITAGE OF MODERN THERAPEUTICS*

By HARVEY G. BECK, M.D.

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In addressing this Society as President of the organization, I fully realize that it is largely a matter of conforming to an old tradition and a time-honored custom. Upon reviewing the list of former presidents in which is included such names as Wood, Wilcox, Satterswaite, Osborne, Shoemaker, Wilson and many others, who in my student days were the outstanding authorities in the field of therapeutics, there developed within me a certain fear or complex coupled with a grave sense of responsibility. This manifested itself primarily in the selection of a suitable subject. My first impulse was to sketch a brief outline of the aims and ambitions of the Society and state what it has already accomplished. However, these subjects having been ably discussed on previous occasions, it was decided to trace the art of healing from antiquity and note what influence it has had on modern therapeutics. This is in accord with the view held by Rokitansky who counseled those about to study medicine and the young physicians to light their torches at the fire of the ancients. John Huxham wrote—"I will not take upon me to say a person cannot be a good physician without consulting that great oracle of physic (Hippocrates) and reading the ancients, but this let me say, he will make a much better physician for so doing, and I believe a few, if any, ever made any considerable figure in the profession who had not studied them."

In order to thoroughly master any art or science a knowledge of its development and past history is essential. Progress in the arts and sciences, as they pertain to medicine has never been steady; there have been long periods of quiescence, and in the dark ages, even of deterioration. In tracing the origin of the healing art one is taken back to a period of great antiquity. For example, trephining and cauterization is a neolithic survival dating back 10,000 years. Amputation and ligation of fingers were practiced among the paleolithic races some 7,000 years ago; however, not as a therapeutic measure but as a symbol of mourning, a sacrifice at the death of a ruler, an initiation ceremony, a mark of caste or to appease a god.

* Presidential Address delivered at the Thirty-third Annual Meeting of the American Therapeutic Society, Baltimore, May 16, 1932.

Disease is far older than man. Fossil remains of prehistoric animals show conclusive evidence that these suffered from such diseases as bone tumors, arthritis and osteomyelitis. Most of the earliest historical records contain references to various practices employed for the relief of human suffering, both mental and physical. These practices from the very beginning were shrouded in mystery and romance. Treatment began by faith healing, generally considered by anthropologists as magical or magico-religious. Primitive man regarded all phenomena which he neither understood nor connected with simple causes as magical or divine. Through his ignorance he lived in constant dread and fear, which in consequence led to superstition. He believed disease to be caused by some evil spirit or supernatural influence, hence he sought a cure from supernatural realms by means of magic, charms, incantations, etc.

Thus religion and medicine were in ancient times combined, and the practice of medicine was largely in the hands of the priests or priest-physicians, who, as interpreters of the will of the unseen gods and goddesses, claimed to possess the most potent charms and therapeutic measures. Among these, magic was considered more powerful than medicine.

The earliest physician of whom we have authentic records was Imhotep. He was physician to King Tshser of the Third Dynasty in Egypt, about 4,500 years B.C. Apparently he was very successful as a physician, having been elevated by the Egyptians first to the rank of a demi-god, and 2,500 years after his death to god of medicine. He was known as "master of secrets", "writer of mysteries" and "bringer of peace". Because of his power to soothe the mind, Walsh suggested that he was a psycho-therapist. As a deity he not only cured patients of their disease but also directed them in their journeys after death. He was to the Egyptians what Aesculapius was to the Greeks. Temples were dedicated to him, one on the Island of Philae and one near Memphis.

Among the earliest records relating to both medicine and pharmacy were those discovered by Kahun in 1889 near the pyramids of Flahum in the ruins of an ancient town which had apparently been inhabited by the builders of the pyramids. It dates from the 12th Dynasty, about 2,700 to 2,500 B.C., more than 1,000 years before the Exodus.

These records, besides containing instructions for midwives, had formulae for the treatment of various complaints which contained

such familiar articles as beer, cow's milk, honey, oil, onions, herbs, dates and other fruits.

Pharmacology was originally introduced for magical purposes. Plants were selected which proved by experience to be poisonous or otherwise capable of affecting the life process. It was only a limited group of individuals who could qualify as magicians, sorcerers or sacrificial priests. Among these their secrets for the curing of disease were jealously guarded and handed down from generation to generation until finally a division took place and the magical and ritual customs became the professional sphere of the priests, while the accumulated knowledge of nature, after being freed from the bondage of magic, formed the basis for the development of the natural sciences including medicine and therapeutics.

The foundation of medicine as an art and science was laid by the Greeks some 2,300 years ago. Hippocrates separated medicine from religion and philosophy and founded medical diagnosis, and as correct diagnosis is the first essential to rational therapy, this may be regarded as his greatest achievement. The Greeks later carried their rational medical practices into Rome, where healing was still a religious rite, cures being sought from their deities of whom there was one for every disease, and as one historian states, even the itch was not without its goddess. It was not long before Greek medicine flourished in Rome.

Primitive man not having any conception of disease suffered chiefly from symptoms, such as pain, headache, weakness, blindness or jaundice. These he attributed to supernatural agencies such as devil born demons, ghosts, spirits of slain animals, human enemies—by casting spells, and spirits acting through the direction of the Almighty as vengeance or punishment for man's manifold shortcomings and sins.

According to Withington, these supernatural agencies of disease were combated by three methods: first, by rendering the body an unpleasant abode for the intruding spirit through squeezing, beating, starving or fumigating, or through the use of nauseous drugs which resulted in vomiting; second, by offering the spirit a more pleasant abode, for instance, the demon of jaundice could be enticed into a yellow canary and that of ague into a cold clammy frog; and third, by the intervention of other spiritual forces which formed the chief role for the priesthood.

The temples built in honor of the mythical god of medicine, Aesculapius, were in a sense large sanatoria, where a health-giving atmosphere was created and where the imposing architecture, suitable location, pleasant surroundings and complete organization had a quieting influence and inspired one with hope. Much importance was placed upon a carefully regulated regimen of diet, baths and recreation. Incurable patients were excluded from the precincts of the temples. These gathered on the outside and were attended by lay physicians, the Asclepiadae, who being friendly with the priests, were allowed to witness the treatment of cases within the temple and to consult the records of diseases and their cures as registered on the marble votive tablets, which were placed in the sanctuary by generations of devout and grateful pilgrims.

These physicians organized and formed schools where the theories and practices then in vogue were taught to individual pupils by discourses and at the bedside. Hippocrates began his medical studies in one of these temples on the Island of Cos, his birthplace.

The priests and the priestesses who were the guardians of the temples prepared the medicine and directed their application.

AMULETS, CHARMS AND TALISMANS

Among the many ways in which superstition manifested itself was the belief in amulets, charms and talismans, which has survived through several thousand years. While they were dispensed primarily by the priests, later during the middle ages when medical practice consisted of a combination of white magic, witchcraft and religion, they were also dispensed by those who practiced medicine, alchemy and astrology.

Pliny, Galen, Dioscorides and other ancient writers on medicine extolled their virtues especially in warding off disease.

Amulets consisted of objects of wood, stone or metal, carved or painted. In addition certain written or spoken words or signs were used. The hidden property they were supposed to possess was believed to avert disease or death from the wearer.

Talismans were objects usually made out of metal or precious stones. They were intended to ward off danger, ill luck or the evil eye. Besides, they were also used for medicinal purposes.

The origin of the amulet and talisman is obscure, but it is known that they were used many centuries before the Christian era by the

Assyrians, Egyptians, Persians, Jews and Chinese; later also by the Greeks and Romans. Those in the form of precious stones were most esteemed as they were supposed to be influenced in some way by the planets and to be the abode of the spirits.

As late as the fifteenth century, physicians frequently wrote their prescriptions in mysterious characters and hung them around the necks of their patients, or bound them near the seat of the complaint. Even in this day there are survivals of these ancient customs as exhibited in the wearing of precious stones in rings, pendants to watch charms, images of saints and the scapularis. Incantations and charms were extensively used in connection with amulets and talismans. However, they also played an important role in ancient plant lore and folk medicine. Among the latter the following examples, cited from Thompson (*Mystery and Romance of Alchemy and Astrology*) serve to illustrate their absurdity. Dragons' blood (*Pleocarpus Indicus*) was very popular as a charm, especially with young girls who sought to win back the affections of their lovers.

St. John's wort was used in the magical art and was also used as a repellent of spectres and to drive away demons, and was called *Fuga Daemonum* by the early botanists. French and German peasants still gather the plant with great ceremony on St. John's day.

Solomon's Seal was used 800 years ago for bruises. Thompson quotes an old author with respect to its property.

"The roots of Solomon's Seale stamped while it is fresh and greene and applied, taketh away in one night, or two at the most, any bruise blacke or blew spots gotten by fals, or woman's wilfulness in stumbling upon her hastie husband's fists or such like."

The fruit of mandrake was popularly known as "love apple" because of the virtues it was supposed to possess of kindling smouldering love. For this purpose it was used as philters and love potions which were prescribed under the name of *Poculum amatorium*. According to Pliny, it was not only used to promote love but also to quench love (homeopathic effect). The writer can vouch that the story of the philter is not purely mythical as it fell within his province to dispense the remedy to a love-lorn young lady during his apprentice days as an apothecary. Aside from the fact that the philter, which was in the form of a powder, was red and the taste was sweet no further revela-

tion of the secret formula shall be made. As to its efficacy, one can easily surmise since the young lady had no occasion to have the philter renewed.

DREAMS

The significance of dreams and their interpretation as practiced by the modern psychoanalyst is not a new theory but dates back through the ages. History records that Galen's father Nikon through a dream learned that his son was destined to be a physician. The Sumerians attached great importance to dreams. Through them they considered that direct medical advice was derived from the gods and the Sacerdotal physicians interpreted the dreams in such a manner as to alleviate the sufferings of the dreamers.

The ancient Greeks were also impressed with their significance and importance. In fact, they introduced a system of temple sleep in order to obtain prophesying dreams from the gods. The patient was expected to make an offering and required to remain in the temple over night. Whatever he dreamt was supposed to be the medical advice of the divinity. However, only the priest could interpret them so as to obtain their full medical benefit.

For those not gifted with pleasant dreams some curious recipes were introduced. Thus in a general recipe book by Maister Alexis of Piedmont, published in 1562, there appears the following "to cause marvelous dreams". "Take the bloode of a lampwink or black plover, and rubbe your temples with it, and so goe to bedde and you shall see mervelous things in your sleepe". Or else "if you eate at nighte a little of the herbe called in Greek Hyoscyamus and you shall see goodly things in your dreame".

Some miraculous reports have been found on the marble votive tablets in the temple of Aesculapius at Epidaurus. On one of these tablets, which dates to about the third century B. C., the story is related of a blind man by the name of Hermon whose sight was restored by sleeping in the temple. However, for some reason he seemed to have disappeared without a votive offering. This ingratitude provoked the god so that he blinded him again. He remained blind until he returned for a second temple sleep when the god restored his vision permanently.

Temple sleep did not die out with the ancient religions, but instead after a lapse of 300 years became a heritage of Christianity. The only difference between the temple sleep of the ancient Greeks and the

Christian temple sleep was that the Greek god rendered aid after one night in the temple, whereas the Christian saints often allowed a year to pass before the patient secured relief. Thus Gregory of Tours relates the experience of a certain man who was deaf, dumb and blind, and tried the sleep in the Church of St. Julian at Brioude who had to sleep for a full year in the colonnade of the Church before the curative power of the holy martyr delivered him from his ailment.

Hippocrates considered that dreams presaged alterations in the body which afforded hints for the treatment and prevention of disease, for which he advised certain diets, exercise, sweating, bathing and vomiting. Besides he ordered prayers and supplications unto respective deities; in good dreams unto Sol, Jupiter, Minerva, Mercurius and Apollo; in bad, unto Tellus and the Heroes.

MEDICAL SAINTS

Some of the saints were especially skilled in certain medical specialties. St. Anna was noted for ophthalmology, St. Jude for coughs, St. Valentine for epilepsy, St. Sebastian for the plague and St. Roch as a veterinarian.

Various methods were employed in obtaining medical aid from the saints. The usual method was for the patient to attend mass in his own church and make them an offering. Pilgrimages were also undertaken to the shrine of distinguished saints, generally on the birthday of the celestial physician, as treatment on these days seemed to yield better results.

Another method of treatment was placing the patient in the church during the day in the space between the altar and the grave of the saint.

As patients often had to wait for long periods before medical aid was secured, special provisions were made by erecting suitable buildings and furnishing food and shelter.

In the middle ages travelling was difficult and fraught with danger so that it became necessary to introduce a means of administering the medical aid of the saints in a more accessible form. This was accomplished by the use of relics.

ALCHEMY AND ASTROLOGY

The manner in which nature was regarded for thousands of years tended to promote superstition. Inductive reasoning being based

largely upon the results of experiment, and as few experiments in natural sciences were undertaken during the middle ages or the period of the Renaissance there was little opportunity for escape from superstition. The experiments then made were mostly for fantastic and superstitious purposes in the interest of alchemy and astrology. Magnus states that all civilized nations, either of ancient or modern times, have expressed their belief in astrology. In the fifteenth century, all mankind was ruled by the stars and the cause of various diseases was attributed to conjunction of certain planets. Babylonian and Assyrian civilizations possessed in their earlier years a well developed system of astrologic medicine. Subsequently it spread over all civilized countries and won a particularly high reputation in Greece and Rome. Astrology in its relation to medicine covers the field of prognosis, diagnosis and therapy. Many books relating to the subject have appeared in literature.

The public was instructed by *calendaria*, mostly compiled by physicians. These were especially popular during the fifteenth and sixteenth centuries. From the thirteenth to the seventeenth centuries the most eminent men were devoted to the doctrine of astrology and it reigned supreme in most of the princely courts.

The alchemists besides their quest for the philosopher's stone were also searching for an elixir of life. These elixirs made by the early alchemists may be said to have been the forerunners of quack medicine.

THE ROYAL TOUCH

The practice of faith healing covers the period from the primitive medicine man to the Christian Science "reader" with but slight variations of detail in the method of application, the essentials being to attract the attention of the patient, to gain his confidence and to inspire faith in his recovery.

A popular treatment was the "royal touch" for the King's Evil. This was introduced by Edward the Confessor and practiced by his successors who were supposed to have inherited the miraculous ability to effect cures by the laying on of hands. However, not all of the kings had faith in its healing power. James regarded it as a superstition and practiced it only for political reasons, while William III divulged his attitude when laying on his hands by his supplication—"May God give you better health and more sense". Finally when he discontinued the practice he was considered a very cruel king. Queen

Anne was the last of the English royalty to practice the art, and Dr. Samuel Johnson was one of the last persons touched. He was then four years old and suffering from scrofula from which he never completely recovered.

POISONS

Mithridates, King of Pontus, who lived in the second century before Christ, was one of the earliest pharmacologists. His experiments were largely confined to the action of poison with the aim of discovering a universal antidote. He was particularly interested in snake venom which he administered to slaves for the sake of studying the effect and finding an antidote. He introduced a compound known as mithridaticum which after some changes in the formula became known as Theriac. Some of the formulas for Theriac contain as many as sixty-three worthless ingredients, the main one being the flesh of vipers.

There was a time when Theriac was employed more extensively than any other known remedy, and up to one hundred years ago was regarded as a cure for all ills.

Poisoning was a popular criminal practice during the middle ages. Because of the lack of knowledge of chemistry to detect the poison and no efficient antidote, the victim usually died and the criminal escaped. There were three schools of poisoners: the Venetian, Roman and Italian.

To hasten the succession in rich or royal families recourse was had to a poison known as the "powder of succession". This method was resorted to in the case of Pope Victor II, Pope Clement VII, Christopher of Denmark, Henry IV of Germany, King John of Castile and Henry IV of France, all of whom fell victims to treacherous poisoning. In Italy the practice was very common with the Borgias in the sixteenth century. In the seventeenth century one of the most famous poisoners was a woman named Toffana who succeeded in poisoning more than 600 victims before she was apprehended and executed. She sold a colorless, tasteless, liquid preparation containing arsenic known as aqua Toffana under the guise of a cosmetic, but the directions how to dispose of worthless husbands or other undesirable beings was confidential information. This and numerous other episodes similar in character led to the passage of the first laws governing the sale of poisons.

As an antidote for all poisons the bezoar stone was highly celebrated. These stones were concretions found in the intestines of sick

goats. Owing to their fabulous price only the royalty could afford them. In the time of Charles IX of France in the sixteenth century a test was made as to the virtue of the bezoar stone. Ambrose Pare, who was the King's physician and had grave doubts as to its merits, suggested to the King to poison someone and then administer the stone, whereupon the King gave a prisoner who was condemned to death by strangulation for stealing two silver dishes the option of this sentence or taking poison and the bezoar stone. He chose the latter; although Pare had him swallow the stone after the poison was administered, the condemned prisoner died. The bezoar stone was recovered and returned to the King, whose faith remained unshaken because he regarded it as a counterfeit and considered that he was cheated when he bought it.

SURGEONS' RESPONSIBILITY

During the earlier centuries of the Christian era, the practice of medicine in the British Isles had many drawbacks as medicine was almost entirely in the hands of ecclesiastics and was subordinated to clerical duties, while surgery on the other hand was wholly carried on by laymen, of whom there were two classes, the surgeons proper and the barber surgeons. The latter attended to minor ailments and injuries.

The real drawback to the surgeons was for failure to redeem their promise to cure. As a punishment they were often fined or even executed if the patient died under their care. In consequence few reputable men would jeopardize their lives in undertaking surgery so that most of the surgery was done by itinerant vagabonds whose bravery exceeded their skill. Haggard in his radio talks on "Devils, Drugs and Doctors", called attention to the following facts:

In 850 A. D., Gutram, King of Burgundy, when the efforts of the two surgeons who treated his Queen during an attack of bubonic plague proved unsuccessful, had the men executed on her tomb for failing to save her.

In 1337, a surgeon was thrown in the River Oder because of his failure to cure John of Bohemia of blindness, and in 1464, the King of Hungary proclaimed that he would reward the surgeon who cured him of an arrow wound, but would put him to death if he failed. Pope John XII burned an unsuccessful surgeon at Florence.

These penalties were not only meted out to the surgeons, but also to others for trivial offenses. For instance, Dr. Werth of Hamburg,

in 1522, dressed as a woman and attended for the sake of study a case of labor during the period when men were excluded from the study of the child-bearing woman. As a punishment of his impiety he was burned to death.

During the middle ages, the practice of obstetrics was in a lamentable state, entirely in the hands of midwives, often of the type of Dickens' Sairy Gamp. Because women were deprived of the aid of the male physician when in difficult labor, they were often left to die or were mutilated to death by the midwife unless a vagabond "surgeon" or hog-gelder who in the fifteenth century was called upon to perform a Caesarian operation could be found to assist in the slaughter.

These conditions existed until Ambrose Pare came to Paris in 1529 and saw the filthy and deplorable condition prevailing in the hospitals at the time. In the Hotel Dieu there were 1200 beds, 486 for single patients, the remaining beds five feet wide were occupied by three to six patients. Eight hundred or more patients were crowded, often lying in heaps of filthy straw, in the large dark and unventilated halls. Besides there were eight beds for the accommodation of 200 infants and young children, the majority of whom promptly died. Of those admitted to the hospital one-fifth died. Similar conditions prevailed in other hospitals.

Pare became especially interested in the child-bearing woman and instituted reforms and new methods of treatment and laid the foundation of obstetrics. A school for midwives was opened during his time at Hotel Dieu, thus elevating midwifery to a respectable position. At the same time the art and science of obstetrics became a department of medicine directed by the physician himself.

DRUGS

In ancient times drugs were obtained chiefly from the animal and vegetable kingdoms. Mineral drugs were practically unknown. There were more than 700 drugs mentioned in the collection of prescriptions contained in the Ebers papyrus which dates back to 1552 B. C. Some of the prescriptions were very simple; others contained many ingredients. Among those identified are many familiar drugs which are still in use. This list included wine, beer, yeast, castor oil, aloes, myrrh, opium, henbane, gentian, colchicum, squills, and many others.

The animal drugs included lizards' blood, swine's teeth, milk, goose grease, asses' hoofs, excreta of human beings, donkeys, antelopes, dogs,

cats and even flies. Fortunately it also contained prescriptions for intestinal parasites which naturally would infest man as a result of administering the excreta from the intestines of these animals. These prescriptions were for the treatment of hookworm, tapeworm, seatworms and other intestinal worms. The influence of the animal drugs, like those of the precious stones mentioned in the Papyrus, persisted for more than 3000 years.

The London pharmacopeias from 1618 to 1721 contained many of these vile remedies. Through the effort of Thomas Sydenham and later, William Heberden, they were banished from the British pharmacopeia in 1788.

Animal products as they are now reintroduced into the pharmacopeias are no longer representative drugs of the mystic art but are the result of pure scientific investigation rationally applied in therapeutics. Dioscorides, who was in his time (first century A. D.) the greatest authority on materia medica, described several thousand drugs in great detail. The substances listed were worked into a system by Galen which was authoritative from the beginning of the Christian era to the seventeenth century. Even to this day the pharmacopeias contain some of the compounds containing vegetable simples or galenicals as they were called. Most of these drugs were inert and had no real therapeutic value.

Paracelsus, who as Osler stated was the Luther of medicine, was undaunted in his courage to change the old traditions. He condemned the alchemists for seeking gold and said their mission was to prepare medicine for the physicians. The galenicals were ridiculed by him and he introduced minerals as therapeutic agents, notably mercury and antimony, the latter under the name of stibium. The word antimony is ascribed to Basile Valentine, a monk who may have been a fictitious character, of whom it is said he observed that food containing the mineral fattened pigs. He then tried the experiments on some monks who were weak and emaciated on account of fasting. They all died—hence the name antimony as it was antagonistic to monks.

Mercury was first used in the treatment of syphilis by vagabond quacks after which it became popular with physicians. As a result of its specific action in this disease, all mineral substances became very much the vogue and often actual harm resulted from the effects of toxic or overdoses. Dover was especially noted for prescribing large

doses of metallic mercury so that he was known as the "Quicksilver Doctor". He ordered from an ounce to an ounce and a quarter of crude mercury daily believing that it freed the patient from all vermicular disease, opened all obstructions and made a pure balsam of the blood. He also ordered from 40 to 70 grains of Dover's powder to the dose, and cites an instance where a patient took 100 grains and was up and about the next day.

Many of the drugs used today were popularized by quacks who exploited them as secret remedies. In this group belong Dover's powder, Fowler's solution, Hoffmann's anodyne, compound tincture of gentian, ipecac, cinchona, Huxham's tincture and many others. For some of these compounds the royalty paid fabulous sums for the formulas.

The extent and abuse of drug therapy as practiced 250 years ago is almost inconceivable in the light of our present knowledge. As a concrete example an authentic case record of the last illness of King Charles II is quoted from Haggard's "Devils, Drugs and Doctors".

"These records are extant in the writings of a Dr. Scarburgh, one of the twelve or fourteen physicians called in to treat the king. At eight o'clock, on Monday morning, of February 2, King Charles was being shaved in his bedroom. With a sudden cry he fell backward and had a violent convulsion. He became unconscious, rallied once or twice, and after a few days died. Seventeenth century autopsy records are far from complete, but one could hazard a guess that the king suffered with an embolism or else his kidneys were diseased. As the first step in treatment, the king was bled to the extent of a pint from a vein in his right arm. Next his shoulder was cut into and the incised area 'cupped' to suck out an additional eight ounces of blood. After this homicidal onslaught the drugging began. An emetic and purgative were administered, and soon after a second purgative. This was followed by an enema, containing antimony, sacred bitters, rock salt, mallow leaves, violets, beer root, camomile flowers, fennel seed, linseed, cinnamon, cardamon seed, saffron, cochineal, and aloes. The enema was repeated in two hours and a purgative given. The king's head was shaved and a blister raised on his scalp. A sneezing powder of hellebore root was administered and also a powder of cowslip flowers 'to strengthen his brain'. The cathartics were repeated at frequent intervals and interspersed with a soothing drink composed of barley water, licorice and sweet almond. Likewise white wine, absinthe and

anise were given, as also were extracts of thistle leaves, mint, rue and angelica. For external treatment a plaster of Burgundy pitch and pigeon dung was applied to the king's feet. The bleeding and purging continued, and to the medicaments were added mellon seeds, manna, slippery elm, black cherry water, an extract of flowers of lime, lily-of-the-valley, peony, lavender, and dissolved pearls. Later came gentian root, nutmeg, quinine, and aloes. The king's condition did not improve, indeed it grew worse, and in the emergency forty drops of extract of human skull were administered to allay convulsions. A rallying dose of Raleigh's antidote was forced down the king's throat; this antidote contained an enormous number of herbs and animal extracts. Finally, bezoar stone was given. Then says Scarburgh, 'Alas! after an ill-fated night his serene majesty's strength seemed exhausted to such a degree that the whole assembly of physicians lost all hope and became despondent; still so as not to appear to fail in doing their duty in any detail, they brought into play the most active cordial'. As a sort of grand summary to this pharmaceutical debauch a mixture of Raleigh's antidote, pearl julep, and ammonia was forced down the throat of the dying king."

Thus King Charles II died in February, 1685, after an illness of several days despite the fact that he was dosed with more than 300 remedies.

This happened at a period when polypharmacy was at its height and the pharmacological action of drugs unknown. Paris states that Huxham's prescriptions often contained several hundred ingredients, and one of them more than four hundred. The writers of the earlier centuries, especially those emanating from the school of Salerno in the eleventh century, were not as enthusiastic about drugs. One of the most important contributions was the "Regimen Sanitatis" which was a popular guide to health for over six hundred years. This contained regulations for the preservation of health by means of diet and rules of living with a tendency to discourage the use of drugs as expressed in the last line of the work—"God graunte that physicke you may never neede".

HYGIENE AND PREVENTIVE MEDICINE

Recent excavations definitely show evidence that hygienic ideas had reached a surprisingly high level as early as 3500 years B. C. Excavations in the Indus valley and Punjab uncovered cities in which

the houses built of brick contained bath rooms, waterproofed floors, house latrines and systems of drainage. Hygiene as practiced in Egypt ranked even higher than their therapeutics. Both public and personal hygiene was regulated by divine ordinations. The priest bathed every six hours, and meat was inspected. These hygienic measures were further advanced by the Greeks, but the highest standard from both the hygienic and engineering standpoints was obtained by the Romans. In Rome some of the sewers built twenty-four centuries ago still remain and form part of the city's sewerage system.

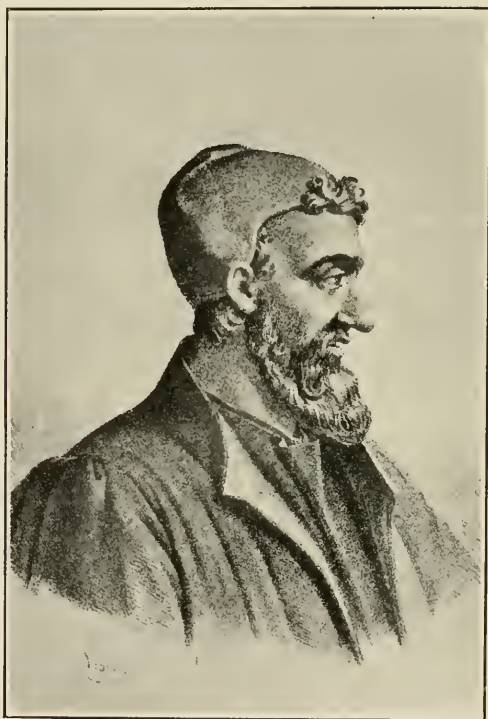
Preventive medicine was successfully practiced in medieval days through the isolation of the lepers, which were segregated in colonies known as Lazarettos. At one time there were 19,000 in western Europe alone.

Some of the earliest records dealing with preventive medicine were those relating to smallpox. Apparently some sort of vaccination against smallpox was used in India and China over 3000 years ago. A certain Hindu physician, Dhanwantari, who lived about 1500 B. C. described the method and even referred to the manner of obtaining the virus from the cow's udder. In China a work was written in 1122 B. C. in which the eruption of smallpox is described, and reference is also made to some kind of inoculation as a remedy for the disease.

It is also known that variolation has been practiced by many of the primitive tribes in Africa from earliest time to the present generation. Those who have read the interesting letters of Lady Mary Wortly-Montagu are familiar with the method of inoculation as practiced in Turkey in the beginning of the eighteenth century. Finally in the latter part of the eighteenth century, Jenner introduced his method of vaccination. Thus there has been an evolutionary period of over 3000 years between the first conception of an idea in preventive medicine and its final achievement as a scientific fact. This is an example, showing how slow and interrupted the progress of therapeutics was up to a century or two ago.

It is not within the scope of this paper to cover all the factors which influenced modern therapeutics. Many important ones must necessarily be omitted. No reference will therefore be made to the plagues and pestilences, the crusades, the origin and development of hospitals, medical and nursing schools. This brief and fragmentary sketch of the historic background of therapeutics leads up to the beginning of

modern science which had its origin in the discovery of the circulation of the blood by William Harvey in the seventeenth century. After this period a change in the attitude of the human mind, a new method of scientific approach, the organization of scientific societies and schools of advanced thought in medicine, all contributed to the introduction and progress of modern or rational therapeutics.



CLAUDIUS GALEN

CALEB WINSLOW, M.D.*

By RANDOLPH WINSLOW. M.D.

BALTIMORE, MD.

My brother, Dr. John R. Winslow, and I desire to present this picture of our father, Dr. Caleb Winslow, to the Medical and Chirurgical Faculty in memory of a former member of this body. Dr. Winslow was born in Perquimans County, North Carolina, on January 24, 1824. His parents were Nathan and Margaret FitzRandolph Winslow, who resided near Belvidere, N. C. His boyhood was passed on his father's plantation where he acquired that knowledge of farming and love for animals and outdoor life which was one of his characteristic features during his life. He attended the best schools that the neighborhood afforded until he was 16 years of age, when he was sent to Haverford School, Pennsylvania. After graduating from this institution in 1842 he returned home and for a time engaged in teaching school and in surveying. It was during this time that his future calling was determined as the result of an accident. Having fractured his clavicle, his attention was directed to the study of medicine, and he accordingly entered the University of Pennsylvania and graduated therefrom in 1849. Returning to North Carolina, he settled in the town of Hertford, where he rapidly acquired an enormous practice. He soon became known as a skillful surgeon and grave surgical cases in large numbers came to him from far and near. In the operation of lithotomy he became especially expert and his record of 99 operations with about 2% mortality rate was remarkable when we remember that his field of labor was in the country, with imperfect appliances for successful work, and often with few and unskilled assistants. In other branches of surgery his results were also extremely successful. It was no uncommon thing for him to be waylaid and unexpectedly required to perform various surgical operations. Upon one such occasion he was surprised to find a party under a tree by the roadside, waiting for him to pass that way. The patient had been transported some distance and brought to that place to have an amputation of the leg performed. With the woods for an amphitheatre and the heavens for a canopy, the operation was successfully performed and all the parties to the transaction went on their way rejoicing.

* Address delivered before Medical and Chirurgical Faculty of Maryland, April.



DR. CALEB WINSLOW

Many years ago he anticipated the modern operation of trephining the skull for traumatic epilepsy. Having been called to a man who suffered from epileptic seizures, which were attributed to an injury to the head, he removed a button of bone at the seat of injury and cured the patient.

In 1859 he was elected a member of the first Board of Medical Examiners of North Carolina and the department of surgery was assigned to him. This board had but a brief existence, as the ominous rumblings of discontent broke out into the flame of Civil War in less than two years from the time of the inauguration of the board. Early in the war our country was overrun by the Yankees and a skirmish took place in our town. Dr. Winslow was accused by a soldier of having been a participant in the fight and was arrested and taken to Roanoke Island, where he was held a prisoner for some weeks. The war wore on to its conclusion, after four years of bitter strife. Our country was ruined, and Dr. Winslow moved to Baltimore in 1866. Finding the surgical field occupied by such men as Nathan R. Smith and Christopher Johnston, he devoted his energies to the acquisition of a general practice and in a short time was in great demand as a family physician. He enjoyed the confidence of the public to a remarkable degree in the department of obstetrics, and in one year attended 366 women in labor, actually more than one case for each day of the year. With a vast and varied clinical experience and a mind exceptionally stored with useful information, he devoted himself untiringly to the practice of his profession, seeking to do that which was right rather than by any equivocal means to gain the attention of the people. He died on June 13, 1895, after an illness of three and one-half years' duration.

BULLETIN

OF THE

SCHOOL OF MEDICINE UNIVERSITY OF MARYLAND

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GORDON WILSON (1876-1932)

On Wednesday, October 26, 1932, in the late afternoon, Dr. Gordon Wilson died suddenly and unexpectedly. He had been in his office for the usual hours, complained of feeling tired, and had gone to a back room to rest. There arose the necessity to disturb him, but when approached he was unconscious. There thus passed, peacefully and quietly, the spirit of a gentleman. He had wished for a sudden death. His "luck held good" and his wish was granted, but all too soon, for he was only fifty-five years old.

There is an old legend that a sun dial, hidden away at the site of an ancient mansion in the midst of a forest, bore the following inscription—"It is later than you think". Chance wanderers coming upon this forgotten dial and its inscription, all that remained of a departed activity and grandeur, would stop and read its message, stay a while to brood over its meaning, and pass on. Dr. Wilson's death came as a surprise and shock to those who knew him, and a shadow crossed their path. For many of us it is later than we think.

He was born on November 30, 1876, a son of the late John A. and Ellen Gordon Wilson, and was related to many prominent Virginia and Maryland families. As a child he spent some time at school in Lausanne, and later graduated from the Episcopal High School of Virginia. He then passed two years in the Academic Department of the University of Virginia, and received his medical degree from the same institution in 1899. He returned to Baltimore, and spent the



DR. GORDON WILSON

Photo by Janvier

summer as a resident at Mt. Wilson, a hospital devoted to the treatment of infants. After this he worked in the Medical Dispensary of the Johns Hopkins Hospital for a short time, but later in the same year, 1900, was appointed Resident Physician. He had charge of Dr. Osler's private patients, and thus early came under his influence; this gave direction to his future life. The next year was occupied as a resident fellow in pathology under Dr. Welch, and this was followed by some post-graduate work in pathology and medicine.

In 1902 Dr. Wilson came to the University of Maryland as chief of clinic in the medical dispensary and brought with him an alien training and the urge of the new life in medical teaching. The Medical School of the University of Maryland had just completed a greater quarter century because of an unusual coterie of outstanding men. But the men of this group had grown old together, and were now dead or in retirement.

Dr. Wilson's influence was almost immediately felt. He brought with him youth, enthusiasm, charm and sincerity of manner, fearlessness, and a keen, but kindly impersonal judgment. Added to all of this, he was an excellent teacher. In a short time, students and teachers turned to him for inspiration, leadership and advice.

Each succeeding year, with his enlarging clinical experience and his developing ability as a teacher, saw continued advancement, until 1913, when he was made professor of medicine and head of the medical department. These onerous responsibilities, including, as they did, didactic lectures, clinics and administrative direction of medical teaching in the school and hospital, were continued until 1922.

His force and attractiveness as a teacher are well remembered by his many students. Thorough in examination, quick in diagnostic perception, clear in exposition, with a deep toned and pleasant voice, he was, in many respects, the embodiment of the ideal teacher. He had a retentive memory, and was able to use the results of his wide experience both in reading and practice.

In 1906 he spent four months in Strassburg, working both in pathology and medicine, under the late Professors Chiari and Krehl. Upon returning, he had an added enthusiasm for the study of tuberculosis. This was perhaps largely due to two factors, first, his personal experience with the disease; and secondly, the intense interest in that subject in the early 1900's, especially through an exhibition in Baltimore and the meeting of the International Congress in Washing-

ton in 1908. In 1907 he was appointed visiting chief of the Baltimore Municipal Hospital for Tuberculosis. He also was a member of the Board of Managers of the Maryland State Tuberculosis Sanatorium when it first opened (1910) and this relationship had continued to the present. The mention of these activities serves to indicate his rather important position in relation to this subject in the City and State.

It was in this period between 1907 and the entrance of the United States in the World War that his activity and influence as a teacher reached its prime. He was busy both in the University Medical School and at the City Hospitals, and during this time, he gathered around him a group of young men, every one of whom have continued to think of him often and with affection.

These men are now widely scattered; R. G. Hussey at Yale; H. M. Stein and Charles C. Habliston in Baltimore; A. G. Hahn at Saranac; E. L. Cook in the Army; F. F. Callahan at the head of Pokegama Sanatorium, Minnesota; Wm. H. Yaeger in Hagerstown, and L. M. Limbaugh in Jacksonville, but all carrying on because their "lips had been touched by a live coal from off the altar."

He was a member of many medical associations and clubs. His chief interest was in the American Climatological and Clinical Association, of which he was president in 1924, and since then had continued a very active interest in its affairs, and served it on many committees.

This long interest in the subject of tuberculosis gave color to his entire medical life. Indeed, at one time, he very seriously considered devoting himself entirely to this work. It afforded opportunity for an ever widening group of professional friendships. It provided outlet for an innate sympathy and understanding in his contacts with patients so afflicted. It enabled him, too, with his combination of rare tact and practical advice, to instill courage and hope in many young medical men, victims of tuberculosis in the early part of their professional lives. Not a few such men, now in responsible positions in the tuberculosis world, affirm their love and gratitude for his inspiring guidance and his help in "placing" them where they have been able to work out their own salvations.

Another important activity, carried out hand in hand with these, was his position as medical director of the Maryland Life Insurance Company of Baltimore. This work had engaged him since 1912. It

was only "part time", but it required a study of the problems associated with medical selection in life insurance. He was a welcomed and active participant in the annual meetings of the Medical Directors Association, from time to time, reading papers particularly relating to the clinical side of this field. Here, too, he enjoyed a wide group of professional friendships, apart from those acquired in the circles of teaching, tuberculosis and the Climatological Society.

Another phase of his life was his experience during the War period. In the early part, in 1917, he was assigned to special tuberculosis boards, first, the Maryland Infantry, and later at Gettysburg in a wider field. In the autumn of the same year he was sent to the Base Hospital at Camp Meade, Maryland. He had the rank of Captain. This winter was one of extreme severity, quarters were crude and incomplete, living conditions made physical comfort impossible. Partially as a result of this, but chiefly as a result of a lack of robustness, which should have prevented his induction into service, his health declined to such degree, that certain of his friends became so apprehensive that they secured orders for a physical survey, and he was discharged from the Army. This was all done without his knowledge or consent. When discharged, he had the rank of Major. At the time he left the service his physique and resistance seemed broken and his friends were alarmed. Nothing in his life gave better proof of his courage and saneness than the manner in which he came back after this experience, and he was not helped toward recovery by either hopefulness or buoyancy of spirit, as he was not overburdened with either of these qualities.

After this he gradually returned to work and to a reasonable degree of health. Much of his active hospital work was discontinued, especially in tuberculosis. His interest was maintained by his continuance upon the board of the State Sanatorium. He had an active office and consulting practice which rapidly extended, especially, since so much of his time was no longer occupied in teaching. Recently, he spent one day every other week as a medical consultant to the Veterans Bureau Hospital at Mount Alto, Washington. This work he greatly enjoyed.

Dr. Wilson was in the habit of giving a yearly lecture on medical ethics and there are many hundreds of men now in active practice, who associate his manner of living with the old and fine traditions of good behavior in the relationship of physician to physician and of

physician to patient. He usually ended these informal talks, quoting in a voice that became more deep and resonant with each succeeding work, "Whatsoever ye would that men should do unto you, do ye even so to them."

In 1908 he married Miss Elizabeth Preston Elliott, daughter of the late Mr. and Mrs. Warren G. Elliott of Baltimore. Mrs. Wilson survives, together with two children, Mrs. John Oliver Needles and Miss Elizabeth Elliott Wilson. During most of his married life he lived at 12 Whitfield Road, Guilford, in a house largely designed by himself, and which always remained one of his minor enthusiasms.

He was a man of many qualities, but perhaps his chief characteristic was his abundant success in friendships. This was, indeed, a rare gift, arising from a deep sympathy and quick appreciation, coupled with a gracious and courteous manner. Yet, it was of no facile type, as he was fearless in judgment, and quick in resenting any deviation from right conduct. He was singularly clean in thought and expression, with a keen wit and an appreciative humor. His hearty laugh and resonant voice will be sadly missed.

Life for him was relatively short, but, as it was lived, full. From all its facets, husband, father, counsellor, teacher, colleague, dinner companion, crowd memories of his endearing charm.

But it was Gordon Wilson, the friend, that we sorely miss. He was an idealist, thinking unconsciously more of honor than ambition, and placing the joys and obligations of friendship high above gain. Many of us came with him through youth and into middle age together, and, while we live, we shall not forget his joy in his friends, his love of human contacts, his steadfast unselfishness, his wonderful voice, rich and vibrant like a bell, his hearty laugh; these traits, along with many others, went into making a man and physician, whose passing has left the world poorer and his friends disconsolate.

He often quoted snatches or tags of poetry; perhaps most frequently from his longtime favorite, Kipling. And from Kipling, we may get this most appropriate estimate of his character—

"And as he trod that day to God, so walked he from his birth,
In simpleness, in gentleness, in honor, and clean mirth."

G. CARROLL LOCKARD.
ARTHUR M. SHIPLEY.



DR. CHARLES C. CONSER

1875-1932

Photograph taken about 1915

DOCTOR CHARLES C. CONSER

Doctor Charles C. Conser, Associate Professor of Physiology at the University of Maryland Medical School, died in Baltimore on August 6, 1932.

Dr. Conser was born in Baltimore April 18, 1875; he was the son of Cortland Charles and Mary Conser. His early education was received in the public schools of Baltimore. After graduation from the University of Maryland in 1900, he spent one year as an interne at the University Hospital, and then entered general practice. From 1901 to 1903 he held the position of Assistant in Clinical Pathology. During the summer of 1903 Dr. Conser spent several months in the physiological laboratory of Professor Walter B. Cannon at Harvard University, studying laboratory methods. Upon his return to Baltimore he became associated with the late Professor John C. Hemmeter as Demonstrator of Physiology. Dr. Conser was in charge of the student demonstrations and the laboratory work. In 1913 he was advanced to Associate in Physiology and in 1915 to Associate Professor. He was active in the latter capacity until the time of his death. In the passing of Dr. Conser, the Department of Physiology has lost an energetic, enthusiastic and faithful worker.

FERD A. RIES.

DR. J. C. LUMPKIN

On September 12, 1932, James Clifton Lumpkin, one of Baltimore's leading surgeons, succumbed to an attack of coronary thrombosis which had its inception scarcely eighteen hours before.

He was born in Berryville, now Deltaville, Middlesex County, Virginia, June 14, 1870, the fourth of eight children of John Roane and Lucy Katherine (Palmer) Lumpkin. Dr. T. M. Lumpkin of this city is a brother. June 10, 1902, he married Miss Anna Muhl of Easton, Pennsylvania, who was a graduate of the Nurses Training School of the Maryland General Hospital and the nurse in charge of the Surgery during his internship. His widow and five children, Robert Clifton, James Morgan, Margaret Katherine, John Garrett and William Randolph, survive him. William, the youngest son, is now a premedical student. His widow has lost a loving husband and his children a kind and understanding father.



DR. JAMES C. LUMPKIN

Photo by Bachrach

His earliest education was from private tutors and later he attended the private school of a Baptist minister, a Reverend Folks. One winter was spent in Baltimore where he attended Grammar School. He then spent three years at William and Mary College following which he taught school in Middlesex County, Virginia, until the fall of 1895 when he entered the Baltimore Medical College from which institution he was graduated in 1898. He was Assistant Resident Surgeon at the Maryland General Hospital 1898-99 and Chief Resident Surgeon 1899-1900.

After leaving the hospital he became associated with Dr. Robert W. Johnson, Sr., Professor of the Principles and Practice of Surgery at the Baltimore Medical College and Surgeon to the Maryland Steel Company and later the Bethlehem Steel Company. Dr. Lumpkin was respectively: Demonstrator of Bandaging and Assistant in Surgery 1900-1903; Associate in Surgery 1903-1904; Lecturer in Surgery 1905-1906; Associate Professor of Surgery 1910-1913 at the Baltimore Medical College, and after the affiliation between that school and the University of Maryland he became a member of the latter faculty. In 1909 Dr. Robert W. Johnson was succeeded by Dr. Ridgely B. Warfield as Professor of the Principles and Practice of Surgery at the Baltimore Medical College and as Chief Surgeon of the Maryland General Hospital. In 1913 Dr. Warfield became Professor of the Practice of Surgery at the University of Maryland which title he held until 1916 when he was appointed Professor of Surgery, which position he held until his death in 1920. Dr. Lumpkin was associated with him in teaching surgery at the Maryland General Hospital in the following positions: 1916-1917 Associate Professor of Clinical Surgery; 1917 Clinical Professor of Surgery which appointment he held until 1925 when the Maryland General Hospital ceased to be a teaching hospital and his active teaching stopped.

In the early years of his professional life Dr. Lumpkin lived at 645 Columbia Avenue where he enjoyed a very large general practice. In 1916 he moved to 818 Park Avenue and limited his practice to general surgery. About this time he was appointed Chief Surgeon to the Bethlehem Steel Company, succeeding Dr. Robert W. Johnson, Sr., who retired to private life. In 1920 following the death of Dr. Ridgely B. Warfield he was appointed Chief Surgeon to the Maryland General Hospital which post he held until his death.

He was a member of the Phi Chi Fraternity, the Baltimore City Medical Society and the Medical and Chirurgical Faculty of Maryland, the American Medical Association and a Fellow of the American College of Surgeons. During the World War he was a member of the Medical Advisory Board No. 1, State of Maryland, serving until his discharge March 31, 1919.

As a surgeon Dr. Lumpkin was very able and achieved a high degree of perfection in his work being an exceptionally good diagnostician as well as a Master Surgeon. In his Industrial Surgery he was often brought face to face with the most unusual problems in some of the cases of severe injuries which were admitted to his service. Here he showed his natural aptitude for his work and devised many unique methods of treatment in order to obtain the results he desired. He was extremely courageous in undertaking severe operations and took delight in studying and operating upon difficult and obscure cases. He was always ready to give advice when sought for by others and frequently assisted other operators when requested by them to do so but never under any circumstances did he force his opinions upon others. He was most considerate and fair to those among whom he worked, being slow to criticize and possessing rare patience and understanding. Insistence upon accuracy in diagnosis, proper pre-operative preparation of patients, refined surgical technique in operating and zealous post-operative care of his patients were the marked characteristics of Dr. Lumpkin, the surgeon.

It is difficult to properly evaluate this man who possesses so many characteristics which make for greatness. A quiet, rather retiring man, he nevertheless by his kindly, pleasant manner and apparent mastery of any situation created in his patients an affection for him and a feeling of complete confidence in his ability. He was most considerate and showed the same consideration to the unfortunate as to those more favored and because of this his passing will be widely mourned. His acts of kindness were performed quite inconspicuously. Loyalty and constancy should be included with his other characteristics. His patients, friends and the institutions he served all attest these fine qualities, but Dr. Lumpkin was not one to be trifled with as he had the moral courage to stand behind his convictions and could not condone vacillation or equivocation. When he felt the cause to be worthy he neither asked nor gave quarter.

Although a busy man with a great many demands upon his time, Dr. Lumpkin was always available to any who sought his advice or help in any matter. Likewise he always took time to take an active part in the work of his church. It was a rare thing for him to miss a service. He attended the Christian Temple where he served as Elder, Trustee and Chairman of the Official Board. Reverend Peter Ainslee, who officiated at his funeral, commented upon Dr. Lumpkin's deep religious conviction and because of his marked "humility" compared him to the "Man of Galilee".

Dr. Lumpkin led an exemplary life. His character can aptly be summed up when one realizes that in his manner of living he fulfilled the admonition of Micah, "and what doth the Lord require of thee, but to do justly, and to love mercy and to walk humbly with thy God?" (Micah 6:8).

GEORGE A. BAWDEN.



PROCEEDINGS

OF THE

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The University of Maryland Biological Society held its first meeting of the 1932-1933 scholastic year on Tuesday, October 18, at 8.30 P. M. in the Chemical Amphitheatre of the School of Medicine. This was the Forty-second Program Meeting of the Society. The meeting opened with a dinner at which the guest speaker, Colonel F. H. Garrison, M.D., Librarian of the Welch Medical Library of the Johns Hopkins University, was the guest of honor. Dr. Siegrist and Dr. Timken of the Johns Hopkins University, Department of Medical History, were also present. Dr. Raymond Pearson, President of the University, was also a guest of the Society on this occasion. After the dinner, Dr. Garrison addressed the Society on "The Development of Research in the Biological Sciences." His address showed the beginning of biological research dating back into the mists of antiquity. He described the principal development of the investigators of the biological sciences through the middle ages until the time of Darwin and Huxley. He showed the influence of European investigations upon biological science as developed in America. Dr. Garrison's paper represented a splendid survey of the development of research in the biological sciences. A large group of physicians and medical students, in addition to the members of the Society, were present to hear him.

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The names listed above are our officers for the term beginning July 1, 1932, and ending June 30, 1933.

REUNION OF ALUMNI

At the last meeting of the Southern Medical Association in Birmingham, Alabama, the graduates of the University of Maryland met at Tutwiler Hotel on November 17th for an informal dinner. Dr. C. C. Wylie of Birmingham arranged a most attractive program. Dr. C. C. Clapp of Baltimore spoke to the graduates on the enthusiastic spirit that now prevailed at the University of Maryland and spoke of the new Hospital about to be constructed. Dr. C. M. Grigsby spoke on the successes of some of the graduates of the school and some of his illustrious classmates. Among those attending the dinner were:

Drs. M. J. Egan, Savannah, Ga.; Ben Gold, Shelby, N. C.; S. L. Edwards, Memphis, Tenn.; Lee Cohen, Baltimore; C. A. Clapp, Baltimore; H. J. Walton, Baltimore; R. A. Allgood, Fayetteville, N. C.; J. F. Huey, Hillsboro, N. C.; T. W. Seay, East Spencer, N. C.; Francis Martin, Charlotte, N. C.; W. H. Toulson, Baltimore; C. M. Grigsby, Dallas, Texas; C. C. Wylie, Birmingham, Ala.; E. L. Scott, Birmingham, Ala.

The oldest graduate present was Dr. J. A. Huey, class of '87, and the youngest graduate was Dr. Francis Martin, class of 1926.

DEATHS

- DR. BENJAMIN ROBERT BENSON, Cockeysville, Md.; class of 1873; aged 78; died, December 2, 1932, of cardiac disease. He was the father of Dr. Clarence Irving Benson, Port Deposit, Md., class of 1909, and of Dr. Benjamin Robert Benson, Jr., Cockeysville, Md., class of 1907.
- DR. THOMAS P. BENSON, Baltimore, Md.; class of 1898; aged 59; died, September 11, 1932, of hypernephroma with pulmonary metastasis.
- DR. BENJAMIN JOHNSON BOND, Tallahassee, Fla.; class of 1904; aged 58; died, September 7, 1932, of uremia.
- DR. GEORGE LANCASTER BROWN, Fort Hunter, Pa.; B. M. C., class of 1894; bank president; aged 66; died, September 25, 1932, of cerebral hemorrhage.
- DR. THOMAS COCKEY BUSSEY, Texas, Md.; class of 1893; aged 75; died, November 22, 1932, following an amputation of the right thigh for gangrene of the foot consecutive to thrombo-angiitis obliterans. Dr. Bennett F. Bussey, Texas, Md., class of 1884, is a brother.
- DR. JOHN CAMP BUTLER, Baltimore, Md.; class of 1882; aged 71; died, December 2, 1932, of cardiac disease.
- DR. JAMES JOSEPH CARROLL, Baltimore, Md.; class of 1893; fellow of the American College of Surgeons; aged 66; died, August 29, 1932, of cardiac disease.
- DR. G. V. CATE, Brunswick, Ga.; P. & S., class of 1888; aged 70; died, October 2, 1932, of paralysis. A practicing physician of the old school for almost a half century, Dr. Cate, by his generous treatment of all classes of patients, had endeared himself to thousands of people of the community. Up to a few months ago when he was afflicted with paralysis, Dr. Cate was active in his practice and it was characteristic of him that his splendid services were given freely to those who were unfortunate and whose only ability in the matter of compensation was a deep and sincere appreciation.

Dr. Cate has served Glynn county as its physician for thirty-four years. He was elected to that position in 1898 and has held it continuously ever since.

Not only in the medical profession was Dr. Cate well known, but he had been active in other lines during his long life in Brunswick. He had always been fond of agriculture pursuits and a pioneer in many phases of this industry. He was one of the first men in this section to raise pure-bred poultry. With his usual farsighted vision he foresaw the value of turkey raising and four years ago started this industry in a small way on his farm located eight miles from Brunswick, at Touchstone Ridge. So successful was he with this venture that he has been recognized as an authority on this subject and his turkey plant is now one of the finest in the south.

Love of children has been a dominating factor of his life. The untimely death by drowning of several boys here many years ago brought to his attention the fact that the youth of this city had no place where they might learn to swim. For this reason he built a concrete swimming pool, the first outdoor pool in this section of the state.

Dr. Gustavus Vassa Cate was born in Orange county, North Carolina, May 17, 1862, the son of William Pleasant and Mary Jane (Long) Cate. He was reared in that county and attended its schools, later going to the University of North Carolina. He received his medical training at the

College of Physicians and Surgeons in Baltimore, Md., from which institution he was graduated in 1888, in company with Dr. Harris M. Branham, of this city. Dr. Cate practiced his profession at Merry Oaks, N. C., later moving to Swampson county, North Carolina. He came to Brunswick in February, 1893.

- DR. JOHN B. CLARK, Eastman, Ga.; P. & S., class of 1893; aged 63; died, September 7, 1932.
- DR. CHARLES W. R. CRUM, Baltimore, Md.; class of 1888; aged 65; died, December 29, 1929.
- DR. SMELT W. DICKINSON, Marion, Va.; class of 1872; also Medical College of Virginia, class of 1871; at one time member of the state board of medical examiners; for many years member of the county board of health and secretary of the school board of Marion; aged 81; died, October 29, 1932.
- DR. JOHN MATTHEWS FRANCIS ENGLISH, Providence, R. I.; class of 1914; aged 43; died, September 20, 1932, of chronic pulmonary tuberculosis.
- DR. THOMAS OSCAR FREEMAN, Mattoon, Ill.; B. M. C., class of 1898; member of the House of Delegates of the American Medical Association, 1916-1917 and 1921-1932; fellow of the American College of Surgeons; formerly member of the state board of health; city health officer; aged 59; died, October 7, 1932, of cerebral hemorrhage.
- DR. GUSTAV GOLDMAN, Baltimore, Md.; B. M. C., class of 1892; aged 67; died, October 8, 1932, of a protracted illness.
- DR. FRANKLIN GRAY KETCHUM, Cambridge, N. Y.; B. M. C., class of 1897; aged 58; died, November 16, 1932, of diabetes mellitus.
- DR. JAMES FLETCHER HENDERSON GORSUCH, Fork, Md.; class of 1876; aged 86; died, September 7, 1932, of senility.
- DR. J. WELTON JOHNSTON, Clarksburg, W. Va.; P. & S., class of 1885; aged 73; died, August 28, 1932, of hepatic cirrhosis.
- DR. JESSE GRIM KISTLER, Allentown, Pa.; B. M. C., class of 1888; aged 69; died, October 25, 1932, of appendicitis.
- DR. JOHN NICHOLAS LENKER, Cleveland, Ohio; P. & S., class of 1886; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons, formerly associate clinical professor of otology, rhinology and laryngology, Western Reserve University School of Medicine; aged 67; died, October 20, 1932.
- DR. JAMES CLIFTON LUMPKIN, Baltimore, Md., B. M. C., class of 1898; formerly professor of clinical surgery, University of Maryland; fellow of the American College of Surgeons; chief surgeon of the Maryland General Hospital; aged 62; died, September 12, 1932, of cardiac disease.
- DR. WILLIAM MONROE LYDAY, Brevard, N. C.; P. & S., class of 1885; aged 67; died, August 15, 1932, of cerebral hemorrhage.
- DR. JAMES WESLEY MALONE, Brooklyn, N. Y.; P. & S., class of 1888; aged 65; died, September 10, 1932, of gastric ulcer and arteriosclerosis.
- DR. JAMES ADAMS MCGREW, New Athens, Ohio, P. & S., class of 1886; aged 69; died, November 15, 1932, of cerebral hemorrhage.
- DR. WILLIAM JOSEPH HARRELL, Norfolk, Va.; P. & S., class of 1884; aged 75; died, October 31, 1932.
- DR. EDWARD QUARLES, Island Creek, Md.; class of 1899; aged 55; was killed, October 31, 1932, when struck by a truck. Dr. Quarles was born in Bel Air, a son of the late John and Alice Jacobs Quarles, of Harford County. After graduating at a preparatory school in Maine, he entered the school of medicine of the University of Maryland, and after receiving his diploma there took post graduate courses at Leipsic, Germany, and Berne, Switzerland. During the World War he was in

charge of a base hospital at Norfolk, Va. He bought a home in Calvert county near Island Creek, and came here to practice his profession about fourteen years ago, since which time he had established a very extensive practice. He was regarded as one of the most successful physicians this county has ever had, and particularly as a diagnostician he showed rare ability. Possessing a brilliant mind, with the advantages of travel and wide reading, Dr. Quarles was at the same time genial and sincere, and made a host of friends among the people of this his adopted county. He will be mourned as a physician and a friend.

- DR. EDWARD HENRY SCHILD, Canton, Ohio; class of 1900; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 65; died, September 3, 1932; of angina pectoris.
- DR. GEORGE W. SCOTT, Randolph, Vt.; B. M. C., class of 1892; member of the Associated Anesthetists of the United States and Canada; aged 64; died, August 26, 1932, of cardiac disease.
- DR. JOHN BURNES SHAMBERGER, Star, N. C.; class of 1890; aged 75; died, October 11, 1932, of cardiac disease.
- DR. JOHN OSCAR SKINNER, Washington, D. C.; class of 1866; also U. of Pa., class of 1867; Lieut. Colonel, U. S. Army, retired; entered Army as assistant surgeon in 1874; retired in 1893; returned to active duty in 1918 and was retired as a Lieut. Col. in 1930, for disability in the line of duty; for many years medical superintendent of Columbia Hospital; aged 87; died, September 12, 1932.
- DR. AARON BENEDICT SOLLENBERGER, Waynesboro, Pa.; B. M. C., class of 1898; aged 61; died, August 2, 1932.
- DR. WILLIAM C. WERTZ, Reading, Pa.; B. M. C., class of 1904; aged 52; died, August 17, 1932, of carcinoma of the pancreas.
- DR. GORDON WILSON, Baltimore, Md.; U. of Va., class of 1899; professor of medicine, University of Maryland, School of Medicine; member and past president of the American Climatological and Clinical Association; served during the World War; aged 55; died, October 26, 1932, of cardiac disease. He was a son of the late Richard Wilson and Ellen Gordon Wilson. Coming to Baltimore after leaving the University of Virginia, he became assistant resident physician at the Johns Hopkins Hospital. Later he studied in Germany for a year. At the entrance of the United States in the World War, he was commissioned a captain in the medical corps and stationed at Camp Meade. He was professor of medicine and head of that department at the University of Maryland from 1914 to 1922, when he assumed the duties he held at the time of his death. In his death, the school has lost an able teacher; his colleagues and pupils, a genuine friend; his patients a skillful and sympathetic physician.
- DR. GEORGE BONAPARTE WOOD, Emporia, Va.; P. & S., class of 1890; aged 74; died, June 9, 1932.
- DR. JULIAN SMITH WOODRUFF, Charlotte, N. C.; class of 1920; aged 38; died, September 27, 1932, of cerebral hemorrhage.
- DR. WILLIAM EDWARD WRIGHT, Harrisburg, Pa.; class of 1888; member of the American Psychiatric Association; past president of the Dauphin County Medical Society; aged 63; died, August 30, 1932, of cerebral hemorrhage.
- DR. J. J. YOUNG, Clayton, N. C.; P. & S., class of 1897; past president of the Johnston County Medical Society; formerly member of the school board; aged 60; died, November 6, 1932, of acute dilatation of the heart and hypertension.

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BULLETIN
OF THE
SCHOOL of MEDICINE
UNIVERSITY OF MARYLAND

APRIL, 1933



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THROMBO-ANGIITIS OBLITERANS AND RAYNAUD'S DISEASE*

By THOMAS B. AYCOCK, M. D.

AND

LEWIS P. GUNDRY, M. D.

BALTIMORE, MD.

Recent studies have done much to clarify our conception of peripheral vascular diseases. However, there is still much uncertainty in the minds of many physicians concerning the diagnosis and treatment of these conditions. It is the purpose of this paper to discuss the two vascular diseases which, excluding arteriosclerosis, are most frequently the cause of an inadequate circulation in the extremities—namely, thrombo-angiitis obliterans and Raynaud's disease. At the outset it will be necessary to review briefly the anatomy and physiology of vascular innervation.

ANATOMY OF VASCULAR INNERVATION

The innervation of the vascular system, like that of most structures of the body, is made up of both afferent and efferent nerve components. The efferent components include both sympathetic and parasympathetic fibers. The pathway of the sympathetic neuroaxones is definitely known, but the same cannot be said of the parasympathetics. The afferent fibers directed from the periphery to the central nervous system are components of the somatic cerebro-spinal nerve trunks.

* From the Department of Surgery, University of Maryland.

In the thorax, the aorta, the superior and the inferior vena cava receive fibers from the sympathetic ganglia, and connecting sympathetic cord, nearest to them. In the main, the same is true of both large and small vessels in the abdomen. The cervical vessels derive their innervation chiefly from the cervical ganglia. The inferior cervical ganglion forms a plexus around the vertebral artery which follows this vessel in its upward course to the base of the brain. Likewise a plexus ascends from the superior cervical ganglion by way of the internal carotid canal and a smaller plexus extends from the same source along the course of the external carotid artery.

The peripheral vessels are supplied by sympathetic fibers that travel by way of the somatic nerve trunks and they are given off to the vessels when they are nearest to them.

The parasympathetic fibers are probably conveyed to the peripheral vessels by way of the dorsal nerve roots. Kure¹ advanced this theory based upon experimental evidence obtained recently in his laboratory. Afferent nerve fibers to blood vessels doubtless exist but data bearing on this subject are somewhat meagre, particularly relating to their extent of distribution and their relationship to other nerve components.

Goering², as early as 1836, described quite accurately our present conception of the distribution of nerves to peripheral blood vessels. He taught that vascular rami arise from nerve trunks at an acute angle and that they join blood vessels chiefly at points where the latter divide and at these points they spread out in the superficial layers of the vascular walls. In the extremities, the vessels are supplied by branches of the nerves that accompany them. Frey³, in 1874, agreed with Goering in this particular.

Kramer and Todd⁴, in 1914, explained that the vessels in the more distal parts of the limbs, particularly those in the hands, were joined by branches of the adjacent nerves more frequently than those in the more proximal parts of the limbs.

Hirsch⁵, in 1925, subsequent to a careful study of the arteries in the lower extremities, stated that he was unable to find a plexus of nerves as high up as the common iliacs that could be regarded as an extension of the aortic plexus.

Kerper⁶, in 1927, working under the supervision of Kuntz, arrived at practically the same conclusion. He divided sympathetic

fibers in the lumbar region and found degenerated nerve fibers in the distant somatic nerve trunks in excess of those found in normal nerve bundles.⁷ He also sectioned the brachial and femoral arteries and found the active nerve supply to be greatly reduced just below the point of section, but did not find any evidence of degeneration two or three inches lower.

The above experimental data, therefore, force us to conclude that any interruption of the vascular nerve supply must be made along the paravertebral autonomic nerve trunks rather than along the course of the primary arteries.

PHYSIOLOGY OF VASCULAR INNERVATION

There is little doubt that the functional control of blood vessels is influenced both by nerve supply and by effects of hormones relayed to them through the blood stream and tissue juices. We know that the caliber of blood vessels supplying certain organs is increased during activity and decreased during rest. These changes in caliber usually involve the capillaries to a greater extent than the large blood vessels. The nerve supply to the former is still questionable, but there is no doubt that they respond to nervous stimulation. Nevertheless, we are as yet unable to find sufficient data to justify an opinion as to what extent these caliber changes represent the direct effect on vessel walls of metabolic products or that of nervous influences. We are convinced, however, that some of the larger vessels are supplied by vaso-constrictor and vaso-dilator nerve fibers.

The caliber of blood vessels is evidently changed by virtue of the contraction or relaxation of the circular and longitudinal muscle fibers. It is certainly feasible to suppose that these influences are brought about largely through sympathetic innervation of this musculature. But the capillaries have no actual musculature and they undergo caliber changes that cannot be explained in this way. Available literature on this subject does not disclose adequate explanation for this behaviour.

It is evident that vaso-constrictor function is conveyed through the sympathetics to practically all arteries and veins for the reasons their points of distribution can be demonstrated and they respond to stimulation of their sympathetic supply. Sympathetic preganglionic neurons are components of the thoracic and upper lumbar ganglia and when either the preganglionic or post-ganglionic fibers that supply a given

area are severed, the blood vessels in that area instantly dilate. For the upper extremities the last preganglionic fibers are said to enter the first thoracic ganglion and for the lower extremities the last are supposed to enter the second lumbar ganglion. Therefore, when this chain is broken the impulses that normally maintain the tonus of the vascular musculature are removed. It has been proven by animal experimentation, however, that these vessels which have lost their innervation regain in a measure their tonus and, in some animals, after a period the caliber of the blood vessels actually became smaller than those on the opposite side. This has been known to occur before regeneration could possibly have taken place.⁸ The only possible explanation that has been offered for this behaviour is that the vascular musculature responds to vaso-constrictor substances in the fluid matrix of the body.

Judging from reports of cases of the Mayo Clinic,⁹ we are led to believe that this does not hold true in the human body. A careful study of their results seems to indicate that there is no evidence of a caliber decrease as long as seven years following sympathetic interruption.

The first reference to the relationship of arteries and gangrene was made by Quernay in 1739. Hebreard, in 1817, made further reference to the same condition. Later Virchow, following personal investigation, mentioned emboli and thrombi as probable etiological factors in the causation of gangrene. Raynaud¹⁰, based upon observations and studies that he made between 1860 and 1874, pointed out that there was a form of gangrene that was not the result of demonstrable lesions in the arterial or venous walls. Neither was it the result of occlusion of any of the peripheral vessels by a thrombus or embolus. Since his time little advance has been made in our clinical knowledge of this disease. Winiwarter, in 1879, described in some detail a condition that he called endarteritis obliterans. Buerger, in 1908, further described this condition as a disease of the peripheral vessels occurring most commonly in males. He believed it was a disease of both the peripheral arteries and veins, with demonstrable changes in their walls. In addition, a thrombus was often found in the lumen of one or more of these affected peripheral vessels. Superimposed on all these pathological changes there was also an associated angiospasm. This disease is now called thrombo-angiitis obliterans or Buerger's disease.

ETIOLOGY

Thrombo-angiitis Obliterans:—Almost all cases, certainly at least 95%, are in men. The disease is more prone to attack those who are active and in early middle life. The average age in the series of Adson and Brown⁹ was 35.5 years. Cases occur relatively frequently in the Jewish race, although any race may be involved. Tobacco is thought by some to be an important etiological factor. The specific cause is unknown.

Raynaud's Disease:—There is much disagreement concerning the specific cause of Raynaud's disease. Formerly it was thought to be due entirely to vasomotor over-activity in the form of spasmodic vasoconstriction. Lewis¹¹ claims that the attacks of cyanosis and pallor are brought about principally by a "local fault" in the walls of the digital arteries. His position is strengthened by his demonstration that attacks could still be induced after sympathetic innervation was interrupted¹². Spurling¹³ and others contend that Raynaud's disease begins as a spasmodic lesion and that occlusive changes may follow later.

In contrast to thrombo-angiitis obliterans, Raynaud's disease occurs more commonly in women; of 147 cases reported by Allen and Brown¹⁴, 89% were women. The greatest number of cases fell in the third decade and race apparently played no part. People who are easily excitable and of a neurotic trend are most frequently involved. Exposure to low temperature and emotional strains play an important rôle in producing attacks.

PATHOLOGY

Thrombo-angiitis Obliterans:—Grossly the vessel walls are thickened and late in the disease there is diffuse scarring causing the arteries, veins, and nerves to become an adherent mass. The arteries are often occluded by thrombi of varying length and phlebitis involving deep or superficial veins is a frequent finding. Microscopically, there is connective tissue proliferation with thickening of the intima. The thrombus usually becomes organized, may undergo canalization and rarely resolution. Resolution would give almost complete recovery as far as the involved vessel is concerned; canalization a partial recovery of the circulation. If, as is most probable, organization takes place, the involved vessel becomes a fibrous cord and the issue is decided by the ability of collateral circulation to care for the nutritional

needs of the tissues. Since the larger and more important vessels are frequently involved, large areas of gangrene and ulcerations, with slow healing result when the collateral circulation is inadequate.

Raynaud's Disease:—Spurling, Jelsma and Rogers¹³ found that in far advanced cases with gangrene there were fibrous changes in all the layers of the vessel walls, particularly in the intima. These changes occurred in the larger digital arteries proximal to the gangrenous areas thereby excluding the possibility that they were secondary to the gangrene. Gangrene involving much tissue is the exception, the usual lesions being small, often symmetrically located, semilunar, necrotic areas at the tips of the fingers.

SYMPTOMS

The symptoms of thrombo-angiitis obliterans begin with pain followed by intermittent claudication, resulting from insufficient blood supply to an extremity. This is particularly noticeable during exercise. With changes in posture, color changes may be seen, namely, pallor, cyanosis and rubor. If the disease is progressive, the pain becomes worse, ultimately becoming continuous. Trophic changes come on in certain of these cases, ulcers are slow to heal, while some may show evidence of healing after a stationary period. Other cases progress to the stage of gangrene either slight or massive.

Unlike Raynaud's disease, which occurs approximately 90% in females, thrombo-angiitis obliterans occurs at least 95% in males. In one of the large groups of this disease the symptoms progress slowly while in still another group the symptoms remain stationary for an indefinite period of time. Many patients never reach the trophic stage and less frequently is gangrene a result.

For purposes of clarity, we, therefore, divide this disease into four groups based on severity of symptoms and rate of progressiveness. The first is one of mild symptoms that may show no evidence of progression after it is first seen by the consultant. The vascular deficiency is manifested by fatigability of the muscles in the affected extremity; cold feet and mild pain is noticed following strenuous exercise; and color variations are evident during changes in posture.

The second group includes a larger number than any of the other three. The symptoms are slowly progressive. These patients complain of coldness of the feet, fatigability of the involved muscles on

slight exertion, and subsequent pain of intermittent claudication. Trophic changes occur after several months or years if the condition is not treated earlier. Pulsations in the primary arteries are diminished or absent. The course usually runs from four to eight years.

The third group behaves radically different from either of the others. The symptoms may progress through all stages to the trophic and thereafter may fail to progress further for a period of four to six months. Then almost overnight the circulation improves sufficiently to elicit pulsation in the extremity and the major symptoms disappear. These favorable changes are probably due to a canalization of thrombi within the lumen of the peripheral vessels.

In the fourth group the symptoms come on quite suddenly. No prodromal symptoms are noticed. The patient complains of excruciating pain of claudication. The disease progresses rapidly and runs its course in the short period of one to three months terminating in massive gangrene. The gangrene may begin in small areas at first, but subsequently spreads and sometimes involves an entire foot or hand. Either of the first two groups may occasionally become converted into a picture as outlined in this type and the pain becomes unbearable so that conservative relief measures are of no avail.

The symptoms of Raynaud's disease begin with intermittent attacks of changes in color. These color changes are not always uniformly symmetrical, nor are they always uniformly the same on a single extremity, but there is always evidence of symmetrical vascular disturbances. During the early stage, there is no evidence of an occlusive vascular lesion in the primary vessels, for the pulsation can always be felt during the periods of remission. The disease may progress to the trophic stage and remain stationary for many months in the less severe cases, but in the more severe ones gangrenous changes may appear. However, they are never of the massive type. The symptoms may be drawn out over a period of eighteen to thirty months.

From a clinical viewpoint, we can also classify Raynaud's disease into four groups. The first represents a large group that occurs chiefly in females of the asthenic type. These patients definitely exhibit cold hands and feet, resulting from excessive vasomotor influence. Often one digit shows both pallor and mild cyanosis. There are wide variations in the surface temperature and during emotional strain the

hands are moist, cold and clammy. Such patients rarely consult their doctor for this condition alone.

The second group manifests the same symptoms except that they are more intense. Attacks of pallor alternate with periods of cyanosis. During the period of asphyxia, one notices numbness and partial anesthesia, and during the stage of syncope, coldness; while during the periods of cyanosis they complain of mild pain.

In the third group the stage of pallor is more intense, cyanosis is more noticeable, and pain is a marked symptom during both stages. In addition, the duration of the attacks is longer before vascular changes afford relief. The extremities become swollen and puffy to touch and after a period of twelve to twenty-four months, trophic changes occur. Later small areas of gangrene may appear at the tips of the fingers or toes.

The fourth group represents a more severe type than any of the first three. In this group the symptoms are markedly exaggerated. Pain is a prominent symptom and gangrene results without a long history of vascular disturbances.

All of these groups fulfill the criteria laid down by Raynaud, namely, symmetrical vascular disturbances, intermittent attacks with remissions, and persistence of pulsation in the primary arteries during the asymptomatic periods. The first group, however, should, in all probability, be excluded and classified as an exaggerated vasomotor influence exerted on blood vessels in normal individuals. The last three, on the other hand, we believe can be classified as types of Raynaud's disease.

DIFFERENTIAL DIAGNOSIS

In differentiating thrombo-angiitis obliterans from Raynaud's disease, one should bear in mind the earlier symptoms of both diseases. With the former there is fatigability of the muscles involved, associated with pain followed by intermittent claudication. There are also color changes varying from extreme pallor to rubor depending upon the height of elevation or dependency of the affected part. The pain progresses and frequently becomes continuous, even when the extremity is at rest. The disease is usually manifested only on one side in the early stages, but later symptoms may appear on the opposite side. There is also diminished or absent pulsation of primary

arteries in the affected part, while in Raynaud's disease pulsations are always present during the periods of relief. In addition, it occurs in males in at least 95% of cases, while Raynaud's disease occurs approximately 90% in females.

A diagnosis of Raynaud's disease depends upon a recognition of abnormal increase in vasomotor action, manifested by symmetrical changes in color, discomfort, pain or numbness with remissions, existence of pulsations in the primary arteries of the affected extremity during relief periods and finally a predilection for the female sex. The symptoms of each are sufficient alone to differentiate one from the other in the absence of infectious or debilitating diseases (these should always be ruled out before a diagnosis of either is made). It is also important to avoid the pitfalls of making a diagnosis of Raynaud's disease in the male sex. If conditions suggesting Raynaud's disease in the male are studied carefully over a period of months or years, almost all of them will give conclusive evidence of organic disease in the arteries themselves. Organic disease of vessel walls may be associated with vasospastic disturbances of the peripheral vessels. This is explained on the grounds that afferent impulses may arise in the adventitial coat of a diseased artery, and give rise to vasomotor reflex. A determination of the skin temperatures, as described below, will do much toward determining the changes that have actually occurred in the peripheral vessels themselves.

NORMAL VASODILATATION LEVEL AND OCCLUSION INDEX

Tests For Selection of Cases:—Morton and Scott¹⁵ have shown that when the sympathetic stimuli causing normal vasoconstriction tonus are removed by a gas and ether, or spinal anaesthetic, vasodilatation occurs with resultant rise in skin temperature of the extremity. The temperature of the skin is most accurately determined by using an instrument known as the Tycos Dermatherm. It is a thermopile made up of four sensitive thermocouples. The terminals of the thermopile are attached to a special millivoltmeter, calibrated to read in degrees centigrade the difference between the skin temperatures and a constant temperature in a thermos bottle containing one end of the thermopile. Tests should be carried out in a room at or near 20°C and air currents should be excluded. At 20°C the temperature of the toes varies between 21°C and 24°C, depending on the amount of vasoconstriction tonus present.

Testing a group of individuals with normal peripheral circulation, Morton and Scott demonstrated that when anaesthesia was induced, the temperature of the great toe in every case rose to 31.5°C or higher. They, therefore, called 31.5°C the "Normal Vasodilatation Level". The rise to this level takes place within twenty to thirty minutes after anaesthesia is begun. Where local anaesthesia such as procaine block of the posterior tibial nerve is used, a temperature of 30.5°C for the great toe is considered evidence of a normal vasodilatation.

If a patient have a peripheral vascular disease, involving the lower extremities, and the temperature of his great toe reaches or exceeds 31.5°C after a general anaesthetic, we conclude that his symptoms arise purely on the basis of spasm, and hence that he would be relieved by any operation interrupting sympathetic innervation. If there be no rise in the temperature of the involved extremity following the anaesthetic, we conclude that the symptoms are due entirely to occlusion of the vessels, and that operation on the sympathetic innervation would be useless. If there be some rise in temperature, but the normal vasodilatation level is not reached, partial spasm and partial occlusion are present, and operation is questionable.

The difference in degrees centigrade between the normal vasodilatation level and the highest temperature reached after an anaesthetic, is called the *Occlusion Index*, it being understood that the maximum temperature reached is less than the normal vasodilatation level. For example, if the maximum temperature of the great toe, after a general anaesthetic, is 29.5°C , the *Occlusion Index* is $31.5^{\circ} - 29.5^{\circ}$, or 2.

Scott¹⁶ feels that if a patient is a good surgical risk, and the *Occlusion Index* 2, or less, ganglionectomy should be done. With an *Occlusion Index* between 2 and 4 benefit to be derived from operation is doubtful, and operation is not advised except in an occasional good risk not aided by medical treatment. An *Occlusion Index* of 4 or more contraindicates operation in his opinion.

It is to be noted that the terms thrombo-angiitis obliterans and Raynaud's disease were not once used in the above discussion of selective tests. The important question to be decided by these tests is a therapeutic one, namely: Is the patient's condition a spastic one, making him a candidate for operation on the sympathetic, if conservative measures fail, or is his condition an occlusive one, contrain-

dicating such operations? Cases falling into the third group of partial spasm and partial occlusion, present a more difficult problem and one which must be decided by the individual case.

MEDICAL TREATMENT

Medical treatment of thrombo-angiitis obliterans and Raynaud's disease is very similar, being directed principally toward the development of collateral circulation, and the prevention of complications requiring amputation. While not as spectacular as surgical therapy, it is none the less important, and when properly carried out, may prevent major operations or unnecessary loss of extremities. Scott, Morton and others recommend that medical treatment be given a thorough trial in cases of Raynaud's disease before surgical intervention.

Periods of bed rest, lasting for several weeks, are of great help at times. Allen and others¹⁷ at the Circulatory Clinic of the Massachusetts General Hospital, give their patients careful typewritten instructions concerning hygiene of the feet, this being probably the most important point in prophylactic treatment. They also advise reducing the tobacco used to a minimum, and the use of modified Buerger's postural exercises. Other prophylactic measures consist in avoiding excessive cold, mental strain and long intervals of standing. Contrast baths are advocated by many. Protein shock therapy is another method used to aid in the development of collateral circulation, the beneficial effect resulting from the vasodilatation occurring with the elevation of temperature. Allen and Smithwick¹⁸ report favorable results using intravenous injections of typhoid vaccine.

SURGICAL TREATMENT

The results obtained from various surgical procedures on the sympathetic nervous system experimentally, have led surgeons to endeavor to apply them clinically. Surgical journals are filled with reports of both successes and failures. This situation will continue to exist until a definite knowledge of the anatomy and physiology of the autonomic nervous system has been established.

The object of surgical treatment both in thrombo-angiitis obliterans and Raynaud's disease is first to block the vasomotor pathways that supply affected areas, when the symptoms are sufficiently great to warrant operative interference, and secondly, to remove the gan-

grenous part by radical measures when all hope of circulatory restoration has been abandoned. In cases showing only mild symptoms, with slight or no pain, and no trophic changes, medical treatment should be instituted. For the slowly progressive type of thrombo-angiitis obliterans as outlined under the second group, sympathetic interruption as advocated by Adson and Brown¹⁹ has in our Clinic offered the greatest relief. For the third group of this disease, operation is not indicated, because the symptoms partially disappear without treatment. The fourth group, however, requires amputation as closely to the line of demarcation as is consistent with obtaining good healthy flaps. Buerger²⁰ advocates the Stokes-Gritti amputation. Our observations have shown that amputation below the knee is frequently followed by a return of symptoms. In making a decision, the condition of the tissues involved should largely influence one. If the inferior cervical and first and second thoracic ganglia for the upper extremities, and the second, third and fourth lumbar ganglia for the lower extremities have been removed, amputation may be successfully accomplished at a lower level than in cases where sympathetic interruption has not been performed.

If symptoms return in a stump following amputation, paravertebral sympathetic interruption, or alcoholic block of the sciatic nerve or brachial plexus should be considered. In the more severe cases of Raynaud's disease, where all protective measures have failed, we believe a ganglionectomy should be instituted before changes take place within the lumen of the terminal arterioles and capillaries.

The results subsequent to ganglionectomy for both diseases in the upper extremities have proven less satisfactory than for the lower. In either event one should remove the cervico-dorsal and second thoracic, so as to be sure of interrupting all known conduction pathways to the upper extremity. The second, third, and fourth lumbar ganglia should be removed for the disease in the lower extremities. If this is not done there may be left intact preganglionic and postganglionic fibers distributed to the affected area. There is little doubt that a thorough knowledge of the anatomical relationship of these structures determines in great measure the success or failure of these operative procedures.

CONCLUSION

In conclusion, we may say that for Raynaud's disease the cases which manifest severe symptoms and where the skin temperature shows a reasonable or marked degree of vasodilatation a ganglionectomy should be done. In the cases of thrombo-angiitis obliterans where the symptoms are progressing and skin tests show evidence of marked vasodilatation, ganglionectomy should be instituted. There is also a second group where there is evidence of only a moderate degree of vasodilatation and the patient complains of pain sufficiently severe to prevent him from following any occupation with reasonable regularity, the same operation should be tried. In addition, there is a third group in which the surgeon must resort to amputation. In these cases, classified in the latter group, ganglionectomy will often enable the operator to select a lower level for his sawline.

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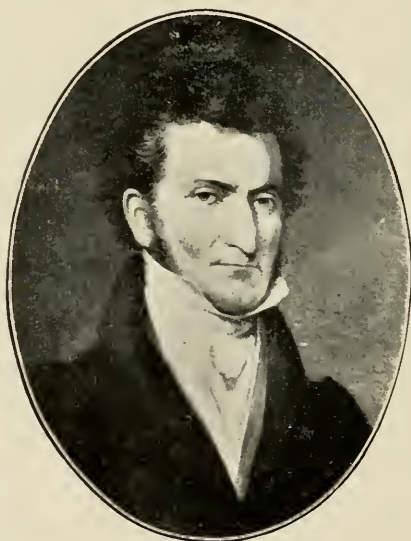
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JULES T. DUCATEL

1796-1849

THE EFFECT OF THE GROWTH HORMONE IN THE EARLY GROWTH PERIOD OF THE ALBINO RAT *

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The work of Evans and his co-workers (1921-28) seems to have put a new impetus into the study of the growth effect of the pituitary gland. Innumerable experiments before this time only led to confusion. While the work of Goetsch¹³ (1916), Marinus¹⁴ (1919) and Robertson and his co-workers^{15, 16, 17} shows results which are positive for growth, that of Cushing¹⁸ (1909), Pearl¹⁹ (1916) and a host of others^{20, 21, 22, 23} fails to show definite growth increase. Although Evans and Long⁷ definitely recognized and demonstrated the growth hormone in 1921, since then a study of subsequent literature still disclosed conflicting results. As recently as 1928, Noether¹² failed to get definite growth in hens. In 1929, Larsen, Bergheim, Barber and Fisher⁵ failed to get growth in rats with anterior pituitary extracts. Likewise, Korenchevsky⁸ (1930) failed to get increased growth in male rats with the use of slightly modified Evans' extract. However, the work of Brouha and Simonnet⁹ (1930), Van Dyke and Wallen-Lawrence¹⁰ (1930) and Johnson and Hill⁶ (1930), all agree with Evans concerning the growth stimulating effect of the anterior lobe of the pituitary gland.

Evans and his co-workers (1921-28) using anterior lobe extracts injected intraperitoneally showed such definite results that the question of growth effect of the pituitary anterior lobe would appear to have been definitely settled. However, this is not the case since studies of the most recent literature still discloses conflicting results. Because of this, it seemed justifiable that some of this work be repeated. Accordingly, this laboratory undertook to study the effect of growth hormone, obtained from the anterior lobe of beef pituitaries, on the early growth period of the albino male and female rats.

* Read before the University of Maryland Biological Society, March 1, 1932.

Material Used:—Albino (*Mus norvegicus albinus*) male and female rats were used in all experiments. These animals, thirty-six in number, were all of early growth period age, and were divided so that each experimental animal had a litter mate (either male or female, depending upon the sex of the injected animal) as a control.

These animals were kept in surroundings which were as nearly similar as possible. The diet used was the Evans and Bishop²⁴ standard diet No. 1 modified by the addition of green vegetables and carrots once a week. Water was constantly available. The animals were always free from parasites and their fur was always clean and sleek. The growth curves of our control males and females showed very little variation from those of the Wistar Institute Rats.

The extract used was furnished by the biological laboratory of Parke, Davis & Company and was prepared by them by a modification of the method used by Putnam, Teel and Benedict^{1, 2} in 1928. The Parke, Davis & Company process has been described by Bugbee, Simond and Grimes⁴. Quoting from this publication:

"A sterile product is obtained by filtration through asbestos and germ proof porcelain filters. This extract retains its potency for several months if kept in the refrigerator."

Although filtration does remove some of the growth hormone, the potency of the preparation was proved by Putnam, Benedict and Teel,³ who succeeded in producing acromegaly in dogs with a filtered extract.

Procedure:—The experimental animals were injected intraperitoneally every day except Sunday with 2 cc. of the anterior pituitary extract. However, six male and female rats were first subjected to commercial antuitrin (P. D. & Co.). After a 5-6 week trial without significant growth results these animals were also given the growth hormone. Then again, in order to test the efficacy of our hormone, at some time during the course of injections, the animals were injected only twice a week for two weeks. Following this diminished dosage, the animals were again given daily injections. Since the growth hormone is specific and extracts prepared from other tissues fail to produce growth,^{4, 5} our controls were not subjected to sterile injections. At the cessation of injections, two female rats were allowed to become pregnant and their growth curves compared with that of their controls.

Results:—It was noted that the males reacted to growth hormone by either no response, negligible response, slight or a fairly marked

growth increase. In other words, the response of the males was quite variable, the majority, however, reacting either poorly or not at all. The females, on the other hand, invariably reacted quite definitely and promptly by added growth. During bi-weekly injection, all injected animals either failed to gain in proportion to their controls or actually lost weight. Finally, an interesting phenomenon noted was the tendency of the growth curves of the pregnant animals to assume their previous relative status after the litters were cast.

Discussion:—From the foregoing, one is soon impressed by the fact that an extract from the anterior lobe of the pituitary gland, when properly prepared, does yield definite growth results. Failure to get growth from such extracts means that the investigator has in some way overlooked some important detail in the preparation or administration of the growth hormone. For example, the failure of Larsen and his co-workers⁵ (to get growth) can be attributed to their use of acetic acid and alcoholic extracts of anterior pituitary gland. This is quite a deviation from directions which Putnam, Teel and Benedict¹ advocate for the preparation of the hormone they used with which they successfully produced acromegaly. On the other hand, Korenchevsky's⁸ negative results are difficult to explain unless such a deviation as grinding the anterior lobes in glycerol during the process of preparation be considered a cause for failure. Korenchevsky⁸ himself states that "results obtained by different investigators are to be explained * * * by the different methods of preparation of the extracts" and yet proceeds to prepare his extract by a method which differs from one known to give positive results.

In these experiments positive growth results are shown in two definite ways: either by a relative increase through administration of the hormone, or by a loss of weight upon cessation of injection after a positive result had previously been obtained. The decrease in weight upon bi-weekly injection or through cessation of injections is in accord with the results of Van Dyke and Wallen-Lawrence¹⁰. These workers reported a decrease in weight 48 hours after the last injection if a positive result had previously been obtained.

The capricious response on the part of the male as compared with the female is in accord with the results obtained by Johnson and Hill.⁶ These investigators, working with mice also found a more marked growth response in the females. There is no question that if injections are maintained long enough practically all experimental rats

would respond. This has clearly been demonstrated by Evans and Long,⁷ who produced giants from males as well as from females after prolonged administration of the growth hormone.

However, the present experiments point to the fact that, other things being equal in the early growth period males respond less definitely to added growth hormone than do females. The reason for this difference of reaction at present is speculative, but it seems as if in the early growth period, the inherently more rapid growth tendencies of the male play a significant part. It appears as though the growth which already is maximum in the young male, fails to become accelerated by an addition of more growth hormone. However, in the adult as shown by many experimentors, the potency of growth hormone makes itself evident by the production of giants. This work further suggests that the rate of body growth of the rat seems to be predestined. This statement is based on the fact that external influences such as pregnancy or excessive growth hormone administration produce growth effects which are only transitory, when the influence is exerted for a relatively short time. For example, upon cessation of hormone administration and upon the casting of a litter, there was a tendency for growth curves which were parallel before artificial acceleration of growth processes to become parallel again.

CONCLUSIONS

1. Alkaline extracts of the anterior lobe of beef pituitaries properly administered produce positive growth response during the early growth period of the female albino rats.

The results in the male appear negative.

2. Failure to get definite growth results in the female may be attributed to faulty preparation or administration of the extract.

3. Weight increases subsequent to hormone injection for short periods are promptly lost upon cessation of administration.

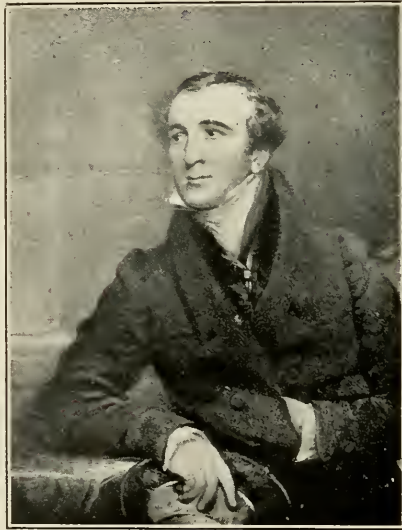
4. The rate of body growth in the rat seems to be predestined.

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GRANVILLE SHARP PATTISON,
Professor of Surgery, 1820-1826.

A SHORT SKETCH OF JOHN D. GODMAN, M.D.

PHYSICIAN, NATURALIST AND MEMBER OF THE MEDICAL AND
CHIRURGICAL FACULTY OF MARYLAND (1818)*

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While I have had some knowledge of John D. Godman, and of his many and varied activities, I had not chosen to inform myself specially of his tragic yet illustrious career. My interest in him at this late date is due to a simple and unexpected incident. One of my daughters was invited to an entertainment at the home of a friend who had a collection of antiques and among them was a framed picture on which the name of John D. Godman was inscribed; and a lock of auburn hair was also framed with the picture and a slip of paper, which had written on it the following statement, "A lock of John D. Godman's hair for his friend Dr. Cohen, Phila., April 18, 1830." As he died on April 17th, 1830, I judge the lock had been cut off his head at the time of his death or at least it was given to Dr. Cohen one day after that lamented event. A peculiar and unusual fact in regard to his signature is that his name, J. D. Godman, M.D., is written in capital letters. There is also another slip of paper pasted on the margin of the picture which says, "Your friend H. E. U.," as far as I can make it out. The illustration is probably a lithograph and was made by a man named Inman. The lady who owned the picture said she had never been able to find out who Dr. Godman was and my daughter was equally ignorant. When the latter returned home and told me about her observation and conversation, and asked me if I knew anything about the man, I requested her to see if she could buy the picture and I have it here this evening to show to you.

Dr. Godman was born at Annapolis, Maryland, on December 20th, 1794, and he died in Germantown, now a section of Philadelphia, on April 17th, 1830, at the early age of 35 years and 4 months. He was the son of Captain Samuel Godman, who had served as an officer in the Revolutionary Army. His mother died when he was

* Read before the Osler Historical Society, Baltimore, March 21, 1933.

2 years old and he was confided to the care of an aunt, who was a pious and cultured woman. In his last days he gave the following encomium to his aunt when he said: "If I have ever been led to do any good, it has been through the influence of her example, instruction and prayers." This lady lived at Wilmington, Delaware, and he accordingly was taken to that city to be with her. Two years later, when he was 4 years of age, they moved to Chestertown, Md., and he remained here until the death of his aunt, which occurred when he was 6 or 7 years old. His father in the meanwhile had died and he was left an orphan, penniless and without care. In a letter to a friend he said: "I have been deprived of property by fraud that was mine by right, I have eaten the bread of misery, I have drunk the cup of sorrow and have arrived at what—manhood, poverty and desolation." At an early age he had received some schooling at Chestertown and subsequently he went to the school of Mr. McCreery in Baltimore, but his time at school was very limited. However, he was an earnest student and by private study he became proficient in the Latin, French and German languages, and also had knowledge of Greek, Italian and Spanish, and, according to one writer, Danish as well. "He read the best works in all these languages and wrote with facility the French and Latin." He also acquired an exceptional ability in the use of his mother tongue—English, in both public discourses and in writing. He was left at an early age without adequate care, but he seems to have had a sister, Mrs. Stella Miller, in Baltimore. I am not acquainted with his history during the next 10 years, but upon one occasion, in 1811, he went into the apothecary shop of a physician and was engaged in reading the Latin names of the drugs when he attracted the attention of an attendant named W. N. Luckey, who was a medical student. Mr. Luckey was attracted to him by his knowledge of Latin and asked him his name. He told his name and said: "You came to see me when I had an attack of bilious colic at Mr. McCreery's School." The Inquisitor then said he supposed that young Godman had learned his Latin in that school, but he was told that Latin was not taught there, only English. This incident shows that he had learned this language by his own efforts and not through the efforts of a teacher. Mr. Luckey in due course became a physician and settled at Elizabethtown, Pennsylvania, and his interest in his friend was subsequently shown in a substantial manner. As Godman ap-

proached adult life he was apprenticed to the printer of a newspaper, but from the start he was exceedingly dissatisfied with this work and subsequently he secured his discharge. He said no scholar could be a printer, but disclaimed the idea that he was a scholar. In a letter to Dr. Luckey dated October 23, 1813, he said: "The disease for which I mentioned a recipe in my last has commenced its direful effects upon my poor body. A continued pain in my breast and at night a slow but burning fever convince me that I am traveling down a much frequented road to the place where disease has no effect." Thus at 19 years of age he indicated his belief that he was suffering from the early stages of tuberculosis. He, however, determined to study medicine, and as a preliminary began the study of Chemistry, with the expectation of securing a situation in a drug store; a hope that does not seem to have been realized. In 1814, during the invasion of the State by the British, he enlisted as a sailor under Commodore Barney and was present at the bombardment of Fort McHenry. He does not seem to have remained a long time in the Navy, as in April, 1815, his friend, Dr. Luckey, offered to take him into his home at Elizabethtown, Pennsylvania, and to afford him the opportunity of studying medicine. He was delighted to receive this invitation and he joyfully accepted it. As he had little or no money with which to secure transportation, he is said to have made the journey on foot in 4 days. He reached his destination on April 10, 1815, and took up his residence at the home of his friend, and here he remained for the next 5 months. He, probably, mastered the volumes in his patron's library, as the Doctor says: "At the end of that time, you would imagine from his conversation, that he was an Edinburgh graduate." At the end of this period he returned to Baltimore and became a pupil of Dr. Richard Wilmot Hall, and in the autumn of that year he began attending lectures at the University of Maryland. He was obliged to discontinue his course at the University, probably on account of his financial embarrassment, but the next year he entered the Medical School again, and he here attracted the attention of Dr. John B. Davidge, Professor of Anatomy; and he was so diligent in the pursuit of knowledge that upon the disablement of Dr. Davidge, due to a fracture of the femur, he was unanimously chosen by the Faculty to supply his place as the lecturer on Anatomy. This being the first and as far as the writer knows, the only time an undergraduate student, has ever been commissioned to assume the duties of

a professor in this school. He lectured with such eloquence and enthusiasm that he gained great applause from his auditors, who are said to have been reluctant to have him discontinue his instruction when the professor recovered and resumed his courses. He was graduated on February 7, 1818, his thesis having been written in the Latin language. Professor Sewall in an eulogy says of him: "Here he pursued his studies with such diligence and zeal, as to furnish, even at that period, strong intimations of his future eminence, so indefatigable was he in the acquisition of knowledge, that he left no opportunity of advancement unimproved, and notwithstanding the deficiency of his preparatory education, he pressed forward with an energy and perseverance, that enabled him not only to rival but to surpass all his fellows." The necessity of making a living now faced him, and he located at New Holland, Pennsylvania, on the banks of the Susquehanna, but his sojourn there was brief and he returned to Maryland. He next located at or near Curtis Bay, Anne Arundel County, and though he secured some practice and spent his idle hours in observing fishes and other aquatic animals, country life was not at all to his taste. In 1819, Dr. Wm. Gibson, Professor of Surgery in the University of Maryland, was called to the University of Pennsylvania to fill a similar chair, and this making a vacancy in the Baltimore school, Dr. Godman hoped to secure the chair of Anatomy in his Alma Mater, but he was considered to be too young for the position, and Granville Sharp Pattison, a Scotchman, was elected to fill the vacant chair of Surgery and John B. Davidge continued as Professor of Anatomy. Godman was much disappointed that he did not secure a position in the University of Maryland, and he moved to Philadelphia, but about this time he was approached to accept the chair of Surgery in the Medical College of Ohio and he accepted the position. He was recommended for this chair by Dr. Wm. Gibson, who said: "In my opinion Dr. Godman would do honor to any school in America." His experience in surgery was very slight, but he is said to have filled the chair with complete satisfaction to his pupils and to the Faculty. Immediately before setting out on his journey to Cincinnati on October 5, 1821, he married Angelica, a daughter of Rembrant Peale, the famous artist, and she accompanied him to his new home, where they arrived in due time. He took part in the second session of the school, but owing to dissensions in the Faculty he resigned at the end of the session. Dr. Godman did not leave the

city at once, but undertook the editorship of the *Western Quarterly Reporter*, which was the first medical journal to be issued in the Valley of the Mississippi. This venture was not, however, a financial success, and on the completion of its 6th number it was discontinued. Each issue of this journal contained 100 pages, one-half of which were from the pen of the editor. Cincinnati at that time was a city of only 10,000 inhabitants, and Godman, probably, thought it did not offer sufficient opportunities for him to remain there, so he determined to return east. This journey was made in a bus in wretched weather, with his wife and infant child, and it required 13 days to reach Philadelphia, in October, 1822. He here decided to open a private dissecting room and to give instructions in Anatomy and Physiology. It is probable that he had the sanction of the University of Pennsylvania in this undertaking, as Dr. Physic, who was an elderly man and a famous surgeon, was at that time Professor of Anatomy, and Dr. Wm. Gibson, his own friend and teacher, the Professor of Surgery in that institution. So successful was this undertaking that his first class consisted of 70 men. He not only taught his classes, but he was in demand as a lecturer, and he devoted much time to the issuing of brochures on various subjects and the publication of the monumental work on "American Natural History," which was the first and for many years the most authoritative work on the mammalian life of North America. His reputation as an author and scientist spread with great rapidity, and in 1826 he was called to Rutgers Medical College in the City of New York, where he was associated with Valentine Mott and David Hosack, eminent members of the medical profession. He labored here with his usual enthusiasm and success, but his health became more and more impaired and he determined to seek a milder climate. He therefore took ship for the Danish Island of Santa Cruz, now St. Croix and belonging to the United States, and he spent the months of February, March and April in that location. I suppose he acquired some knowledge of the Danish language at that time. However, his health was not benefitted by his sojourn in the tropics, and in May, 1828, he returned to Philadelphia and took up his residence in Germantown. Writing to a friend, he says: "All my prospects as a public teacher are utterly destroyed, as I can never hope, nor would I venture if I could to again resume my labors. My success promised to be very great, but it has pleased God that I should move in a different direction." He continued to write

for the support of his family until the last month of his life. At one time he is said to have been an agnostic, or, perhaps, an infidel, but for some time before his death he became a devout Christian, and in a letter to a friend shortly before his decease he writes: "But for the hopes afforded me, by an humble reliance on the all-sufficient atonement of our blessed Redeemer, I should have been the most wretched of men. But I trust that the afflictions I have endured have been sanctified to my awakening and to the regeneration of my heart and life. May we, my dear friend, persist to cling to the only sure support against all that is evil in life and all that is fearful in death." And in this hopeful spirit he calmly awaited the call of God, which took place on April 17, 1830. In his last illness he was attended by Dr. Samuel Jackson, Professor of Institutes of Medicine in the University of Pennsylvania. He was not a great physician; indeed he did not have the opportunity or the desire to practice medicine, but he was a great scientist. Dr. T. G. Richardson says: "He seemed to love the truth for truth's sake; while he was ever ready and willing to impart it to others, he did not make a display of it for the purpose of applause, but preferred rather to pass for a student even among those whom he essayed to teach."

Dr. Drake, who knew him intimately, sums up the chief characteristics of Godman in the following sentences: "Dr. Godman was without doubt a man of genius, but he was not so much the expositor, as the historian of nature, observing, imaginative, fluent and graphical, he abounded less in deep and original analysis than in vivid and accurate delineations. Thus his mind like that of Lucretius, Darwin and Good was poetical and philosophical; and he left behind him several fugitive pieces, written chiefly in his last illness, which prove that he might have shown as the poet of nature, not less than her historian, had circumstances awakened his powers."

Dr. Samuel D. Gross says in his autobiography: "I had heard so much of Godman and saw before me a thin, frail, sickly man, with a pallid face, black hair and eyes and a clear, sonorous voice. Godman was poor all his life. Poverty literally pursued him from the cradle to the grave. Gifted beyond most of his contemporaries, he failed in almost everything. With great powers as an anatomical teacher, he attracted large, but unremunerative classes. For 18 months after he took to literary pursuits he daily performed an astonishing amount of work, breathing as he did with one lung. His was a life of true

heroism. His 'Rambles of a Naturalist' has many admirers on account of the beauty and fascination of its style." Either time has changed the color of his hair or Dr. Gross is wrong in his recollection, as the tuft herewith shown with the picture is not black, but seems to be auburn in hue.

To Dr. Eugene F. Cordell, the Medical Profession of Maryland is largely indebted for the clear and accurate description of the characteristics of John D. Godman. He writes that "As a lecturer he was remarkably gifted, possessing an easy and natural style, simple but choice language, quick and accurate powers of illustration. His delivery was fervid and impressive and held the attention of his audiences whatever the subject. His countenance was expressive and his voice wonderfully melodious and flexible. In his favorite branch, anatomy, he seemed to know exactly the wants of those beginning its study and he was the first and only one in this country who ever has been able successfully to carry on his dissections in the presence of his class without interruption to the integrity of his lecture. This he always contended is the true method of teaching anatomy in the Amphitheatre; and with his happily constituted powers of description, and his great aptitude in handling the scalpel, the superiority of the plan was clearly demonstrated, however awkward and tedious such a course might seem when attempted by almost anyone else. In his intercourse with society, he was characterized by great frankness and honesty of purpose, conjoined with great suavity of manner, which captivated every one with whom he was brought in contact; and the close attachment of the numerous friends who enjoyed his intimacy is sufficient evidence of his sincerity and uprightness of heart. He was one of the most accomplished general scholars and linguists, acute and erudite naturalists, ready, pleasing and instructive lecturers and writers of his country or era. He prosecuted extensive and diversified researches, composed superior disquisitions and reviews and large and valuable volumes, and he imparted a freshness and vigor to everything he touched."

Dr. Godman exemplified the old motto "carpe diem," for he utilized to the fullest his very limited working time. He, probably, cut short his life by his intense industry, but he achieved results. On July 3rd, 1829, he deposited the title of a book in the office of the Eastern District of Pennsylvania, entitled "Addresses Delivered on Several Public Occasions," by John D. Godman, late Professor of Nat-

ural History to the Franklin Institute of Pennsylvania, Professor of Anatomy and Physiology in Rutgers Medical College, one of the Anatomical Professors to the National Academy of Design, New York, member of the American Philosophical Society; correspondent of the Medico-Chirurgical Society of Berlin; member of the Academy of Natural Sciences of Philadelphia, etc.

Several of these addresses were disquisitions on the subject of anatomy, from one of which I extract a few sentences. He says of anatomy: "Centuries elapsed between the earlier steps of its improvement, and from age to age we perceive it handed down in the condition it was left in by Galen, under the shadow of whose ponderous volumes it was dimly seen and incorrectly portrayed. It seems as if the very dust which time had deposited on its pages was too sacred to be lightly removed; and the hardy investigator who ventured to doubt his inspiration and veracity, was marked as profane, or shunned as if accursed. One person at length was found, whose eager and energetic mind was not to be satisfied with anything short of the truth; who disdained to pin his faith on the mere assertion of others; who appealed from books to facts, from men to things, from dogmatism to nature. Vesalius, of Brussels, was the man who did this, and who merits the grateful remembrance of every student of anatomy. He, by his knife, detected and exposed the rash conclusions and fallacies of Galen; awakened the sleeping spirit of inquiry and breathed a new life into the bosoms of those who studied anatomy." Godman then proposes that anatomy should be taught by dissections in the presence of the class, and, indeed, this was the method that he used in his lectures.

In a lecture on "Professional Reputation," delivered before the Philadelphia Medical Society on February 8, 1826, he says: "The first requisite to success is a good education; of this education we consider the study of those languages whence not only our technical phrases, but our mother tongue itself are derived, as a most essential and vitally important part." He also stresses the great advantage of strict adherence to truth rather than to the dubious ways of falsehood; and especially does he lay great stress upon good manners as a means of securing success in the practice of medicine. In all of these qualities he was easily a master.

In addition to many addresses and lectures upon various subjects, he was a co-editor of the Philadelphia Journal of the Medical Sciences

from 1824 until his death. He also translated Lavasseur's Narrative of Lafayette's visit to the United States. But his chief interest was in Natural History, and his membership in the Academy of Natural Sciences, in Philadelphia, gave him the opportunity of extending his investigations in this field. In 1826 he published his "magnum opus," "American Natural History," an admirably illustrated work on Mammalian life in this hemisphere, which passed through 3 editions and was certainly the first and the most scholarly treatise on this subject produced in this country for many years. Until his death he was the editor of the Natural History section of the *Encyclopedia Americana*. His "Rambles of a Naturalist" is said to have been written while he was confined to his bed by sickness and were subsequently published in a book form. They are charming narratives, and the copy I exhibit tonight is interesting not only from its intrinsic merit, but from the fact that it was presented to Dr. Thomas Buckler by S. A. Godman, who, I suppose, was the son of Dr. Godman, and in the course of time came into the possession of Dr. I. E. Atkinson, and from him to this Faculty.

I have written enough; I am already entering upon the time of life mentioned by Godman in one of his addresses: "Last comes the lean and slippered pantaloon." "The marks of decline and decrepitude become more perceptible. The teeth are all gone, the face is sunk, the eye quenched in rheum. The voice feeble, unequal and whistling, the sight and hearing rapidly fail, and the other senses are almost obliterated." This being the verdict of one who did not live long enough to experience these evils in his own person, I will close with the reproduction of one of his own poems, entitled:

A MIDNIGHT MEDITATION

'Tis midnight's solemn hour! Now wide unfurled
Darkness expands her mantle o'er the world:
The fire fly's lamp has ceased its fitful gleam,
The cricket's chirp is hushed; the boding scream
Of the grey owl is stilled; the lofty trees
Scarce wave their summits to the failing breeze;
All nature is at rest, or seems to sleep;
'Tis thine alone, oh Man, to watch and weep!
Thine 'tis to feel thy system's sad decay,
As flares the taper of thy life away
Beneath the influence of fell disease;
Thine 'tis to know the want of mental ease
Springing from memory of time misspent;
Of slighted blessings; deepest discontent,
And riotous rebellion 'gainst the laws
Of health, truth, heaven, to win the world's applause!

Such was thy course, Eugenio, such thy hardened heart,
'Till mercy spoke and death unsheathed the dart,
Twanged his unerring bow, and drove the steel,
Too deep to be withdrawn, too wide the wound to heal;
Yet left of life a feebly glimmering ray,
Slowly to sink and gently ebb away.
And yet how blest am I!
While myriad others lie
In agony of fever or of pain,
With parching tongue and burning eye,
Or fiercely throbbing brain;
My feeble frame, though spoiled of rest,
Is not of comfort dispossessed.
My mind awake, looks up to thee,
Father of Mercy! whose blest hand I see
In all things acting for our good,
Howe'er thy mercies be misunderstood.

See where the waning moon
Slowly surmounts yon dark tree tops,
Her light decreases steadily and soon
The solemn night her stole of darkness drops:
Thus to my sinking soul in hours of gloom,
The cheering beams of hope resplendent come,
Thus the thick clouds which sin and sorrow rear
Are changed to brightness, or swift disappear.
Hark! that shrill note proclaims the approaching day;
The distant east is streaked with lines of gray;
Faint warblings from the neighboring groves arise,
The tuneful tribes salute the brightening skies.
Peace breathes around; dim visions o'er me creep,
The weary night outwatched, thank God! I too may sleep.

His last words were, "Lord Jesus, receive my soul."



FILARIA.

ANNOUNCEMENT

University of Maryland, Division of Medical Extension

A Combined Review Course for Physicians

June 5th to 23rd, 1933

During three weeks of June, 1933, the Division of Medical Extension of the University of Maryland will offer its tenth annual review course for physicians. This is a single, intensive general course, which will last only three weeks. It is designed primarily to give to the physician in general practice the opportunity of studying those methods of diagnosis and of treatment which are in current use in the University Clinics. By careful use of the short period of time available a wide range of subjects is briefly presented. The greater part of the course is devoted to general medicine, but surgery and the various specialties are also included.

Information:

Questions concerning the course may be addressed to the Dean of the Medical School, University of Maryland, Baltimore.

Requirements for Admission:

The applicant must be a registered physician in good standing. Preference will be given to physicians registered in Maryland.

Enrollment:

The course this year will be limited to twenty men. It is suggested that applications be made promptly as the course will be filled up in the order that applications are received. Address: Dean of the Medical School, University of Maryland, Baltimore.

Fees and Tuition:

A matriculation fee of \$25.00 will be charged to all registrants from Maryland. For those coming from other States a charge of \$50.00 will be made.

Registration and Matriculation:

Monday, June 5th, 1933, 8.30 A. M., northeast corner Lombard and Greene Streets, Baltimore.

Daily Schedule:

9.00-10.00—Lectures.

10.00-11.30—Ward Rounds.

11.30-12.30—Clinic.

12.30- 1.30—Lunch.

1.30- 2.30—Dispensary Clinic.

3.30- 4.30—Laboratory and Therapeutic Procedures, X-ray and Electrocardiography.

Lectures:

The morning lectures will deal with modern advances in diagnosis and treatment. The subjects will be chiefly from the field of general medicine and surgery, with a few lectures devoted to the specialties.

Ward Rounds:

The class will be divided into groups for ward rounds and will visit the ward patients on the medical, surgical, and special services, in the University, Mercy and City Hospitals.

Clinics:

There will be a daily clinic in the Amphitheatre of the University Hospital. These clinics will be given by different departments.

Dispensary Clinics:

The class will be assigned in groups in rotation to the Dispensary Clinics for pediatrics, genito-urinary diseases, syphilis, and gastrointestinal diseases.

*Laboratory, Therapeutic Procedures, Roentgen Diagnosis,
Electrocardiography:*

In these afternoon periods instruction will be given in the laboratory methods of diagnosis. Modern functional tests such as those employed in diseases of the kidneys and of the liver will be demonstrated. The technique of, and the indications for the use of such procedures as transfusion, venesection, infusion, and spinal puncture will be taken up, and demonstrated when possible. There will be a number of periods devoted to X-ray diagnosis. Electrocardiography and the interpretation of electrocardiograms will be briefly presented.

BULLETIN

OF THE

SCHOOL OF MEDICINE UNIVERSITY OF MARYLAND

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EDWARD NATHANIEL BRUSH, M. D.

Dr. Edward N. Brush, Emeritus Professor of Psychiatry in the University of Maryland and College of Physicians and Surgeons since 1920, died at his home in Mount Washington, January 10, 1933, after an illness of but five days, from pneumonia.

The above connection began as far back as 1900 when Dr. Brush was appointed Professor of Psychiatry at the College of Physicians and Surgeons. He continued to hold this chair after the amalgamation of the College with the Medical Department of the University of Maryland until 1920, when, coincident with his retirement from the Superintendency of the Sheppard and Enoch Pratt Hospital, he became Professor Emeritus.

Dr. Brush never grew old, although he was almost eighty-one when he died. He had a keen mind, a wonderful memory, an active interest in life and its affairs. In appearance and manner he seemed to be a man in his sixties. For years he had been editor of the *American Journal of Psychiatry* and, although he retired from this position in 1931, he continued to perform a part of its duties until his death. His philosophy of life is well expressed in an article he wrote during the last year of his life and which is published in the April, 1933, number of *Occupational Therapy and Rehabilitation*.

He frequently served as consultant and had an appointment to see a patient on the day he died. He was also much sought after in medico-legal work and served as an expert in many cases. Perhaps the most famous one was the Schneider Case, in which, probably for



DR. EDWARD NATHANIEL BRUSH

the first time in this country, the experts summoned by both the plaintiff and the defendant met together and correlated their findings which were presented to the judge. Dr. Brush described this experience under the title "A New Departure in Medical Jurisprudence."

Dr. Brush was born April 23, 1852, in Erie County, N. Y. His preliminary education was obtained in Buffalo, and he graduated in medicine from the University of Buffalo, February 24, 1874. His preceptor was Dr. Julius F. Miner, Professor of Surgery, so that his interest turned to that branch. He was assistant to Dr. Miner, and later to Dr. James P. White, under whom he gained experience in gynecology. He also became clinical assistant to the Professor of Medicine, Dr. Thomas F. Rochester, at the Hospital of the Sisters of Charity, and later became Lecturer on Electro-Therapeutics at the Buffalo Medical School.

In the summer of 1878 he had to give up his offices and planned to spend a vacation in Boston, studying under Reginald H. Fitz. Before his plans were completed he was offered a *locum tenens* at the Utica State Asylum. He accepted this as it gave opportunity to study laboratory technic under Theodore Deecke, probably the first pathologist in any American hospital for mental diseases. The physician whose place he was filling died abroad and Dr. Brush was offered the position of assistant physician. By this time he had become much interested in mental disorders and so accepted. He was promoted from time to time and in December, 1884, became first assistant physician at the Pennsylvania Hospital for the Insane, in charge of the male department. In 1891 he was appointed superintendent of the Sheppard Asylum at Towson, Md., which position he held until 1920. He was president of the Baltimore County Medical Association in 1910, of the Medical and Chirurgical Faculty in 1905, and of the American Psychiatric Association in 1915. He was also a member of the American Neurological Association, Senior Medical Military Association, the National Committee for Mental Hygiene, and the Mental Hygiene Society of Maryland, being its president from 1914-1926. He was an honorary member of the Medico-Psychological Association of Great Britain and Ireland and of the Societe Medicine Mentale de Belgique, and a foreign associate member of the Societe Medico-Psychologique de Paris.

During his life he was a member of the University Club, Baltimore Club, Baltimore Country Club, Medical Reunion, Sons of the

Revolution and Authors Club of London. His geniality made him popular.

Dr. Brush married Miss Delia Hawley of Buffalo, September 18, 1879, who died December 20, 1911. He married, August 6, 1914, Miss Marie Trego Hartman of Baltimore, who survives him. He is also survived by three children: Mrs. W. Hall Harris, Jr., of Baltimore; Dr. Nathaniel Hawley Brush, of Santa Barbara, California; and Mrs. Lloyd Parker Shippen, of Washington, D. C.

—W. R. DUNTON, JR.



LECTURE TICKETS USED IN THE FIRST PERIOD OF THE INSTITUTION
BY PROFESSORS DAVIDGE, POTTER, DE BUTTS, BAKER
AND GIBSON.

PROCEEDINGS

OF THE UNIVERSITY OF MARYLAND BIOLOGICAL SOCIETY

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The University of Maryland Biological Society held its Forty-third Program Meeting on Tuesday, November 15, 1932, at 8.30 P. M., in the Chemical Amphitheatre of the School of Medicine. The President, Dr. John C. Krantz, Jr., presided.

The first paper presented at the meeting was "Sugar Metabolism and Blood Studies Following Vagotomy" by Julius Friedenwald, M. D., Samuel Morrison, M. D., and Maurice Feldman, M. D. The second paper presented to the society was "Experimental Studies on the Effect of Acids and Other Substances in the Production of Acute Gastric Ulcers" by Julius Friedenwald, M. D., Samuel Morrison, M. D., and Maurice Feldman, M. D.

The following are abstracts of their papers:

SUGAR METABOLISM AND BLOOD STUDIES FOLLOWING VAGOTOMY

By JULIUS FRIEDENWALD, M.D., SAMUEL MORRISON, M.D.,
MAURICE FELDMAN, M.D.*

Blood chemistry and sugar metabolism studies were carried out on control and vagotomized dogs. The following conclusions from these studies seem warranted:

1. Inconsistent changes occur in the blood chemistry, the significance of which is dubious.
2. The sugar tolerance test upon control and vagotomized dogs failed to yield consistent curves.
3. The effects of vagotomy disappear rapidly. The convulsions and loss of weight in these dogs cannot be explained by demonstrable changes in the blood chemistry nor can they be based upon con-

* From the Gastro-Enterology Department, University of Maryland, Medical School.

sistent abnormalities in sugar metabolism. It seems that a definite metabolic disturbance is accountable for this phenomenon and that starvation certainly plays an important role in the production of these symptoms. However, other factors, as yet undetermined, may be concerned in their development and further studies must be made to discover them.

4. The blood sugar responded in the same manner in control and vagotomized dogs following the administration of insulin. However, the general symptoms noted in the operated on animals were apt to be more marked than in the controls.
 5. Histological examination of the pancreas after vagotomy failed to disclose significant pathological changes.
-

EXPERIMENTAL STUDIES ON THE EFFECT OF ACIDS AND OTHER SUBSTANCES IN THE PRODUCTION OF ACUTE GASTRIC ULCERS

By JULIUS FRIEDENWALD, M.D., SAMUEL MORRISON, M.D.,
MAURICE FELDMAN, M.D.*

Various substances were administered orally or injected directly into the wall of the stomach in studies on the production of acute gastric ulcer. The following conclusions seem warranted:

1. Weak hydrochloric acid (0.3%), when injected into the wall of the stomach, did not produce gastric ulcer. The injection of 1.0% acid is followed by ulceration.
 2. Feeding a dog with 10.0% hydrochloric acid is followed by acute ulceration and perforation.
 3. No relationship could be demonstrated between the injection into the gastric wall of various substances (salt solution, glucose, protein or lipid material, histamine, adrenalin, etc.) and the production of hyperacidity.
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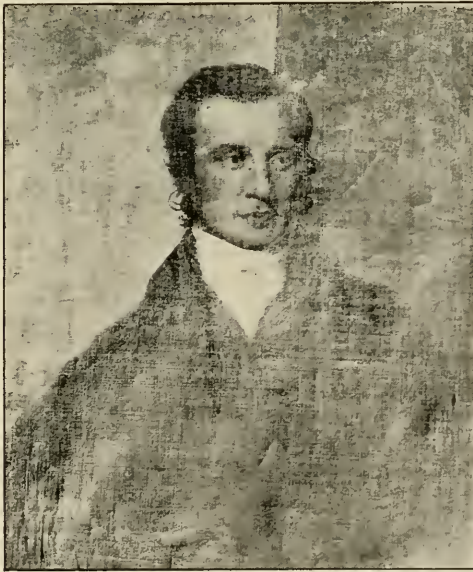
The Forty-fourth Program Meeting of the University of Maryland Biological Society was held Thursday, December 15, 1932, at 8.30 P. M., in the Chemical Amphitheatre of the School of Medicine. The meeting was presided over by the President, Dr. John C. Krantz, Jr. The paper presented to the society was "On the Toxicity of Purified Bile Preparations. III. Cardio-Vascular Responses" by Ferd A. Ries, M. D., and E. U. Still, Ph. D. * The discussion was opened by Dr. Harvey G. Beck.

* From the Departments of Physiology of the University of Chicago and the University of Maryland Medical School.

The following is an abstract of their paper:

Investigations were conducted to determine the effects of purified bile salts upon the autonomic nervous system (cardio-vascular fibers) and upon cardio-vascular reflex centers. The authors feel that the following conclusions are warranted:

1. Bile salts do not seem to materially affect conduction through the nerve fibers.
2. Small amounts of bile salts increase irritability of vagus endings, but depress the sympathetic endings.
3. The injection of large doses of bile salts tends to produce block (relative or absolute) of the endings of both systems.
4. These factors are probably involved in the pulse and blood pressure changes of obstructive jaundice.
5. The medullary centers are more resistant to bile salts than are their peripheral components.



PROFESSOR SAMUEL BAKER.

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The names listed above are our officers for the term beginning July 1, 1932, and ending June 30, 1933.

ITEMS

Dr. William S. Love, Jr., Baltimore, Md., class of 1923, has announced the removal of his office from the Medical Arts Building to 2211 Eutaw Place. Dr. Love is especially interested in cardiology and basal metabolism determinations.

Dr. Perceval Sherer Rossiter, Captain, Medical Corps, United States Navy, class of 1895, has been appointed Surgeon General of the United States Navy with the rank of Rear Admiral. Admiral Rossiter was born November 30, 1874, in West Virginia, and was appointed an acting assistant surgeon in the Navy, January 23, 1903. Several months later he received his commission as assistant surgeon and in June, 1924, was promoted to a captaincy. The new chief surgeon has had a remarkably varied, as well as praiseworthy career in the Navy. During the World War he was senior medical officer of the Naval Training Station at San Francisco, later being transferred to sea duty aboard the transport Huntington. In 1922, he was assigned to duty in the Bureau of Medicine and Surgery at the Navy Department and placed in charge of the personnel division. Toward the close of

1922, he was assigned to membership on the United States Naval Commission to Brazil. Returning from Brazil, Admiral Rossiter was made executive officer at the Naval Hospital, Chelsea, Mass., and later was placed in command of the Naval Hospital at Brooklyn, N. Y. His last assignment was commanding officer of the Naval Hospital at Washington, D. C.

Dr. Ignatius P. A. Byrne, class of 1916, is located at 1071 Lorimer Street, Brooklyn, N. Y.

Dr. Emil Novak, Baltimore, Md., B. M. C., class of 1904, writes under date of December 8, 1932:

I have just returned from New York, where I was the guest speaker at the annual banquet and reunion of the Baltimore Medical Club of New York City. Incidentally, I enjoyed the occasion immensely.

Dr. Luther E. Little, class of 1928, announces the opening of offices at 719 Park Avenue, Baltimore, Md. He will limit his practice to general surgery.

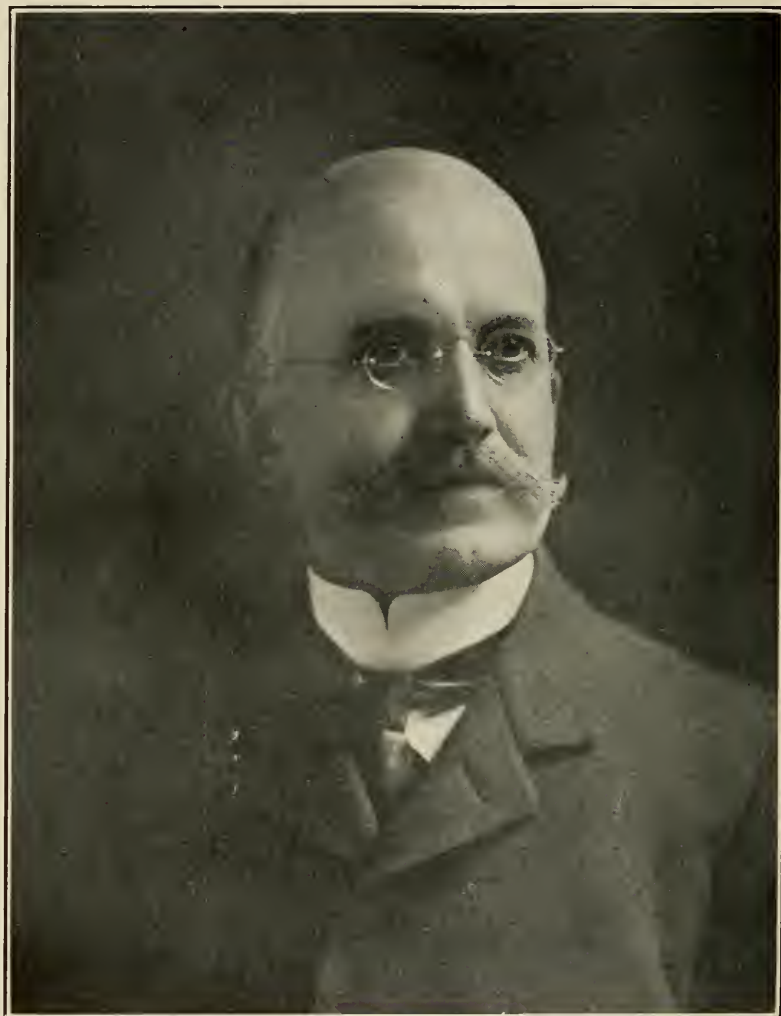
Dr. Edward D. Ellis, B. M. C., class of 1890, has resumed the practice of medicine. He is located at 47 East Foothill Boulevard, Altadena, Calif.

Dr. Claude Russell Ball, class of 1927, Lieut. M. C., and Assistant Surgeon United States Navy, is attending the course of instruction at the United States Naval Medical School, Washington, D. C.

WEDDINGS

Dr. E. Eugene Covington, Baltimore, Md., class of 1927, was married on February 27, 1933, at Annapolis, Md., to Miss Geraldine Margaret Leahey, R. N., of Pennsylvania, a graduate of the Mercy Hospital Training School for Nurses, class of 1929. Dr. Covington is at present an instructor in operative surgery at the University of Maryland.

Dr. James L. Gallagher, B. M. C., 1902, was married on February 21, 1933, at Balboa Heights, Canal Zone, to Miss Marie Veronica Butler, of Buffalo, N. Y.



DR. EDWARD N. BRUSH
An Early Photo.

DEATHS

- DR. JOHN AYD, Baltimore, Md.; P. & S., class of 1886; also a graduate of the Maryland School of Pharmacy (U. of Md.), class of 1875; aged 70; died, January 3, 1933, of intestinal carcinoma. Dr. Frank John Ayd, P. & S., class of 1914, is a son.
- DR. JOHN HACK AYRES, Accomac, Va.; class of 1888; formerly member of the state board of medical examiners; aged 67; died, December 8, 1932, of cerebral arterio-sclerosis.
- DR. JOSEPH BLUM, New York, N. Y.; class of 1885; aged 71; died, December 11, 1932, of cardiac disease.
- DR. NEEDHAM P. BODDIE, Durham, N. C.; P. & S., class of 1883; aged 73; died, January 20, 1933, of cardiac disease.
- DR. EDWARD NATHANIEL BRUSH, Baltimore, Md.; emeritus professor of phychiatry, University of Maryland, School of Medicine and College of Physicians and Surgeons; president, Medical Chirurgical Faculty of Maryland, 1905; past president of the Baltimore County Medical Society; a graduate of the University of Buffalo (N. Y.) School of Medicine, class of 1874; member and past president of the American Psychiatric Association; past president of the Mental Hygiene Society of Maryland; member of the National Committee of Mental Hygiene; honorary member of the Medico-Psychological Association of Great Britain and Ireland and of the Soc. de Med. Mentale, Belgium; foreign associate member of the Societe Medico-Psychologique, Paris; physician-in-chief and medical superintendent of the Sheppard and Enoch Pratt Hospital, Baltimore, 1891-1920; editor of the Buffalo Medical Journal, 1874-1879; associate editor of the American Journal of Insanity, now known as the American Journal of Psychiatry, 1878-1884, 1897-1904 and editor, 1904-1931; aged 80; died, January 10, 1933, of pneumonia.
- DR. THOMAS C. BUSSEY, Texas, Md.; P. & S., class of 1893; aged 75; died, November 21, 1932, following an amputation of the thigh for senile gangrene.
- DR. JOHN CAMP BUTLER, Baltimore, Md.; class of 1882; aged 71; died, December 2, 1932, of cardiac disease.
- DR. GUSTAVUS V. CATE, Brunswick, Ga.; P. & S., class of 1888; aged 70; died, October 2, 1932.
- DR. JOHN COOK, Douglas, Ariz.; B. M. C., class of 1902; fellow of the American College of Surgeons; served during the World War; aged 60; died, January 12, 1933, of carcinoma of the intestine.
- DR. JAMES LE ROY COOPER, Fort Worth, Tex.; P. & S., class of 1883; aged 72; died, Janary 13, 1933, of peritonitis consecutive to a cholecystectomy.
- DR. WILLIAM J. CORSE, Baltimore, Md.; class of 1872; aged 87; died, December 21, 1932, of a lingering illness. He practised medicine for about 7 years, but gave it up to enter the nursery business of his father.
- DR. WILLIAM H. CRAIG, Upland, Calif.; P. & S., class of 1886; aged 73; died, January 9, 1933, of cerebral hemorrhage.
- DR. CHARLES CALLERY CROUSHORE, Greensburg, Pa.; class of 1905; aged 53; died, November 17, 1932.
- DR. WILLIAM HERBERT CROWELL, Whiteville, N. C.; class of 1895; aged 60; died, February 12, 1933, of pneumonia.

- DR. CHRISTOPHER C. DICK, Altoona, Pa.; P. & S., class of 1893; aged 72; died, December 30, 1932.
- DR. MICHAEL JOHN DILLON, Springfield, Mass.; B. M. C., class of 1908; member of the board of health; fellow of the American College of Surgeons; aged 49; died, February 11, 1933, of angina pectoris.
- DR. GAUDIOSE LEMAITRE DUHAIME, Fall River, Mass.; B. M. C., class of 1896; aged 71; died, October 15, 1932, of myocarditis and chronic nephritis.
- DR. WILLIAM BRYAN GASTON, Clarksburg, W. Va.; class of 1925; served during the World War; aged 34; died, December 12, 1932, of pneumonia.
- DR. RICHARD GERSTELL, Keyser, W. Va.; class of 1873; bank president; aged 81; died, January 13, 1933, of arteriosclerosis, hypertrophy of the prostate gland and bronchopneumonia.
- DR. HARRY JESSE GILBERT, Newark, N. J.; class of 1915; aged 48; died, December 6, 1932, of cellulitis and pulmonary infarct.
- DR. GROVER LATHAM HOWARD, Prestonburg, Ky.; class of 1911; aged 48; died, November 27, 1932, of cerebral hemorrhage.
- DR. JOSEPH EDOUARD HUARD, Fall River, Mass.; P. & S., class of 1896; aged 60; died, December 30, 1932, of coronary thrombosis, arteriosclerosis and hypertension.
- DR. FREDERICK HUTCHISON, Aldie, Va.; Washington University School of Medicine, class of 1876; aged 80; died, February 20, 1933, of cerebral hemorrhage.
- DR. HENRY JOSEPH KEANEY, Everett, Mass.; B. M. C., class of 1901; served during the World War; aged 54; died, March 1, 1933, of angina pectoris.
- DR. ELMER A. KELL, Hanover, Pa.; B. M. C., class of 1900; past president of the Wyoming State Medical Society; formerly mayor and president of the school board of Rawlins, Wyoming; aged 54; died, January 31, 1933, of cardiac disease.
- DR. JAMES LOFTIN KERNODLE, Burlington, N. C.; P. & S., class of 1893; aged 63; died, February 18, 1933, of cardiac disease.
- DR. JOHN POLLARD LA BARRE, Miami, Fla.; class of 1901; veteran of the Spanish-American War, member of Company M, Fifth Maryland Regiment Infantry, U. S. V.; aged 55; died, March 8, 1933.
- DR. WILLIAM A. LAYER, Greenville, Ohio; B. M. C., class of 1895; aged 64; died, December 6, 1932, of cerebral hemorrhage.
- DR. AUSTIN A. LAMAR, Middletown, Md.; B. M. C., class of 1898; aged 56; died, December 11, 1932, of uremia and nephritis.
- DR. EUGENE LEBARON, Brawley, Calif.; class of 1892; aged 67; died, November 27, 1932, of cardiac disease.
- DR. JOHN W. LEITCH, Huntingtown, Md.; P. & S., class of 1896; chairman of the Calvert County Democratic State Central Committee; a Democratic elector in the last presidential election; from 1918 to 1922, county school commissioner; 1922-1926, county treasurer; aged 63; died, March 4, 1933, of gastric carcinoma.
- DR. GEORGE LOTZ, Chicago, Ill.; P. & S., class of 1892; aged 70; died, March 4, 1933, of coronary embolism and arteriosclerosis.
- DR. CHARLES MCCAULEY, Hagerstown, Md.; class of 1878; aged 78; died, June 2, 1932.
- DR. GEORGE LEWIS MACK, Bound Brook, N. J.; P. & S., class of 1907; aged 51; died, January 16, 1933, of cardiac disease.

- DR. MARSHALL DOIG MACNAUGHT, Walton, N. Y.; B. M. C., class of 1910; aged 49; died, March 8, 1933, of an infection consecutive to a wound inflicted by an instrument while treating a patient.
- DR. JAMES McTEER MILLER, Wytheville, Va.; P. & S., class of 1896; past president of the Southwestern Virginia Medical Society; aged 63; died, March 12, 1933, of myocarditis.
- JANE MOFFATT, R.N., supervisor of the University Hospital Dispensary services, a native of Ireland and a most efficient, capable and competent nurse, died, February 21, 1933, of abdominal carcinoma. She was a tireless worker. Her absence will be much missed by the dispensary staff.
- DR. WATSON MOFFITT, Washington, D. C.; B. M. C., class of 1907; served during the World War; aged 48; died, January 22, 1933, of cardiac disease.
- DR. CHARLES E. MOORE, Alden, Pa.; P. & S., class of 1883; aged 71; died, December 1, 1932.
- DR. JOHN HOWARD NESBITT, Dallas, Tex.; B. M. C., class of 1905; served during the World War; connected with the Veterans' Administration; aged 52; died, in December, 1932, of cardiac disease.
- DR. GEORGE W. NORMAN, Jamestown, N. C.; B. M. C., class of 1896; aged 60; died, January 7, 1933, of pneumonia and influenza.
- DR. CHARLES D. FREDERICK O'HERN, Tulsa, Okla.; P. & S., class of 1907; fellow of the American College of Surgeons; past president of the Oklahoma State Board of Medical Examiners; aged 54, died, December 10, 1932, of organic cardiac disease.
- DR. S. K. OWENS, Montgomery, W. Va.; P. & S., class of 1891; aged 66; died, December 3, 1932.
- DR. REDDING HAMILTON PATE, Unadilla, Ga.; class of 1898; past president of the Dooly County Medical Society; veteran of the Spanish-American War; mayor of Unadilla; formerly chairman of the county board of education; aged 60; died, November 25, 1932, of lobar pneumonia.
- DR. JOHN H. REHBERGER, Baltimore, Md.; class of 1873; aged 82; died, January 22, 1933, of arteriosclerosis and chronic myocarditis.
- DR. WILLIAM S. RICHARDSON, Williamsport, Md.; P. & S., class of 1890; aged 76; died, December 29, 1932, of influenza.
- DR. WILLIAM POTTER SHAW, Berlin, Pa.; class of 1893; aged 67; died, March 13, 1933, of complications consecutive to an operation. Dr. Shaw was born at Barton, Md. He came from English ancestry, the first of the line being George Shaw of Barton-On-Humber, Lincolnshire, England. The Shaws were among the first settlers of Allegany County, Md. owning at one time large tracts of land in the vicinity of what is now Barton. He graduated from Bryant and Stratton's Business College and later from the School of Medicine, University of Maryland. The Berlin Borough council passed the following resolution in honor of the memory of Dr. Shaw at a meeting held March 15, 1933.

Resolved, The council of the borough of Berlin has heard with profound sorrow and deep regrets the announcement of the death of Hon. W. P. Shaw, late Burgess of the borough of Berlin.

Resolved, That the council and all its appointed members attend the funeral of the deceased burgess in a body.

Resolved, That all the places of business in the borough be requested to close from 2 o'clock to 4 o'clock p. m. on Thursday, March 16, out of respect to the deceased.

Resolved, That the secretary transmit a copy of these resolutions to the family of the deceased.

P. D. COLLINS, President of Council.

EDGAR COUGHENOUR, Secretary.

DR. LUKE M. SHIPLEY, West Friendship, Md.; class of 1869; aged 90; died, February 16, 1933.

DR. WILLIAM QUAIL SKILLING, Lonaconing, Md.; class of 1883; aged 72; died February 6, 1932, of pneumonia.

Dr. Skilling possessed the attributes which endeared him to his patients, and which make the good physician a friend as well as an adviser in the time of need. His death was a distinct loss to his family, and to the community and to the profession of which he had been an honored member for nearly fifty years. Few men devoted themselves to a profession as closely as he and his ability in diagnosing cases was marked. He was dignified and cultured, and has left behind him a priceless heritage of accomplishment. The lives of those who knew him have been enriched by his friendship and helpfulness.

He was a member of the Medical and Chirurgical Faculty of Maryland, American Medical Association, Southern Medical Association, Allegany-Garrett County Medical Society, Ninth International Medical Congress, Maryland Historical Society, Alumni Association of the University of Maryland, past-president Tri-State Medical Association and a Knight Templar.

In 1883, he married Miss Lottie Weistling Kuhn. Mrs. Skilling and two children, Dr. W. K. Skilling, of Baltimore and Miss Charlotte Quail Skilling, of Lonaconing, survive him. A son, Lieut. John Galen Skilling, M. C., A. E. F., made the supreme sacrifice in France just a few days before the signing of the Armistice, and in his memory a tablet was erected by his class in the University of Maryland.

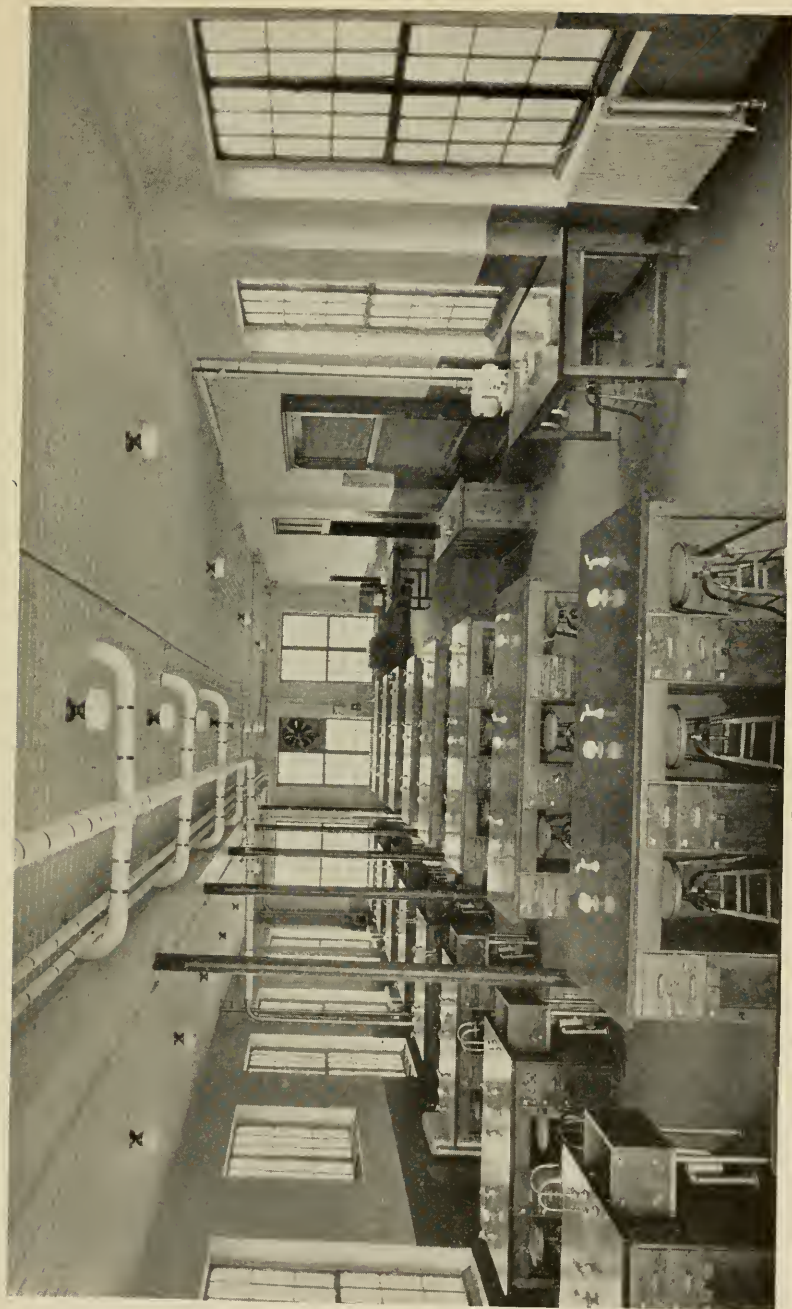
DR. WILLIAM SIDNEY THAYER, Baltimore, Md.; Harvard University, School of Medicine, class of 1889; past president of the American Medical Association; brigadier general United States Army and chief medical consultant of the American Expeditionary Forces in France; emeritus professor of Medicine, Johns Hopkins University, School of Medicine; a friend of the University of Maryland and a frequent speaker at the Thursday afternoon clinics given by the University of Maryland Medical School; aged 68; died, December 10, 1932, of cardiac disease. While never holding any official position in the University of Maryland, he served its cause on various occasions. It gives us pleasure to pay this slight token of respect to this gentleman and scholar.

DR. LEONARD JAMES TURLINGTON, Baltimore, Md.; class of 1892; aged 77; died, March 3, 1933, of injuries received in an automobile accident.

DR. WILLIAM OSCAR WHITTLE, Baltimore, Md.; class of 1916; served during the World War; aged 47; died, February 2, 1933, of gastric carcinoma.

DR. JOHN M. V. WILLS, Corsicanna, Tex.; P. & S., class of 1881; Confederate veteran; aged 86; died, March 8, 1933, of arteriosclerosis.

PATHOLOGICAL LABORATORIES



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SPRING ACTIVITIES

The President and Board of Directors of the Alumni Association, together with the Dean and Medical Council of the Medical School of the University of Maryland, cordially invite you to attend these activities.

PROGRAM

June 2nd, 1933

- 9:00 A. M. - 12:00 Noon—Registration at the Medical Alumni House. Short talks by Drs. Wylie and Spencer in their respective laboratories.
- 12:00 Noon—Complimentary Luncheon, Hotel Rennert, Liberty and Saratoga Streets.
- 1:00 P. M.—Annual Meeting of the Medical Alumni Association (Rennert).
- 2:00 P. M.—Orthopedic Clinic by Dr. George E. Bennett.
Gynecological Clinic by Dr. Emil Novak.
- 4:00 - 7:00 P. M.—Intermission.
- 7:00 P. M.—Annual Banquet, Lord Baltimore Hotel.

GUESTS OF HONOR

R. A. PEARSON,

President of the University of Maryland.

HIS EXCELLENCY, THE HONORABLE ALBERT C. RITCHIE,

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REAR-ADMIRAL PERCIVAL SHERER ROSSITER,

Surgeon-General, M. C., U. S. Navy.

GRADUATES OF 1933 SCHOOL OF MEDICINE, UNIVERSITY OF MARYLAND.

SPEAKERS

R. A. PEARSON,

President of the University of Maryland.

REAR-ADMIRAL PERCIVAL SHERER ROSSITER,

Surgeon-General, M. C., U. S. Navy.

June 3rd, 1933

3.30 P. M.—Commencement Exercises, Ritchie Colosseum, College Park, Maryland.

The following classes have definitely expressed their intention to hold a reunion this year:

Class of 1928—Dr. Benj. S. Rich, Medical Arts Building, Baltimore, Maryland.

Class of 1923—Dr. T. Jos. Touhey, 800 South Ellwood Avenue, Baltimore, Maryland.

Dr. C. Franklin Smith, 47 South Gallatin Avenue, Uniontown, Pennsylvania.

Class of 1913—Dr. W. H. Toulson, Medical Arts Building, Baltimore, Maryland.

Dr. I. M. Zimmerman, Williamsport, Maryland.

Class of 1903—Dr. C. B. Ensor, Park Heights and Garrison Avenues, Baltimore, Maryland.

Class of 1895—Of which Dr. Rossiter is a member, is also planning a re-union.

NOTE:—The reunions will include the graduates from the College of Physicians and Surgeons, University of Maryland and The Baltimore Medical College. Any other classes desiring to hold a reunion will please get in touch with the Alumni office, 519 West Lombard Street, Baltimore, Maryland, and we shall be pleased to help in every possible way to make the affair a success.

Secretary of the Medical Alumni Association:

Kindly send.ticket. . for the Alumni Banquet of the Medical Alumni Association, University of Maryland, to be held at the Lord Baltimore Hotel, on Friday evening, June 2nd, 1933, at 7 P. M.

will

I or be present for the Luncheon.

will not

Enclosed please find subscription at \$4.00 per ticket.

Name

Address

(Detach and mail to: MEDICAL ALUMNI ASSOCIATION,
519 West Lombard Street, Baltimore, Maryland.)

Programs may be obtained at the time of registration.



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MEDICAL ALUMNI ASSOCIATION

Name.....

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A check for \$5.00 should accompany this application to cover dues for one year.

Tear out and mail to Secretary, Medical Alumni Association, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.

CHANGE OF ADDRESS

The Editorial Committee is making every effort to maintain a complete and accurate file of our alumni. This is a difficult task, and cannot be done without the aid of our graduates. We therefore, request each and every one of you when changing your residence to fill in the accompany form.

Name.....

Old Address.....

New Address.....

Tear out and mail to Managing Editor, Bulletin, University of Maryland, 519 W. Lombard St., Baltimore, Maryland.

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BULLETIN
OF THE
SCHOOL *of* MEDICINE
UNIVERSITY OF MARYLAND

MAY, 1933



PUBLISHED FIVE TIMES A YEAR
(JANUARY, APRIL, MAY, JULY AND OCTOBER)

Lombard and Greene Streets
Baltimore, Md.

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BULLETIN

OF THE

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

AND

COLLEGE OF PHYSICIANS AND SURGEONS

Successor to THE HOSPITAL BULLETIN of the University of Maryland, BALTIMORE MEDICAL COLLEGE NEWS, and the JOURNAL of the Alumni Association of the College of Physicians and Surgeons.

VOL. XVII

MAY, 1933

No. 5

ANNUAL ANNOUNCEMENT

SESSION 1933-34

CALENDAR

1933-34

SCHOOL OF MEDICINE

FIRST SEMESTER

1933

September 22, Friday—*Registration for first- and second-year students.

September 23, Saturday—*Registration for all other students.

September 25, Monday—Instruction begins with the first scheduled period.

September 30, Saturday—Late registration, with fine included, until noon
this day.

November 30, Thursday—Thanksgiving Day. Holiday.

December 20, Wednesday—Christmas recess begins after the last scheduled
period.

1934

January 2, Tuesday—Instruction resumed with the first scheduled period.

January 27, Saturday—First semester ends after the last scheduled period.

SECOND SEMESTER

January 29, Monday—*Registration for first- and second-year students.

January 30, Tuesday—*Registration for all other students.

January 30, Tuesday—Instruction begins with the first scheduled period for
first and second-year students.

January 31, Wednesday—Instruction begins with the first scheduled period
for all other students.

February 3, Saturday—Late registration, with fine included, until noon
this day.

February 22, Thursday—Washington's Birthday. Holiday.

March 29, Thursday—Easter recess begins after the last scheduled period.

April 3, Tuesday—Instruction resumed with the first scheduled period.

June 6, Wednesday—Commencement.

*A student who neglects or fails to register prior to or within the day or days specified for his or her school will be called upon to pay a fine of five dollars (\$5.00). The last day of registration with fine added to regular fees is Saturday at noon of the week in which instruction begins following the specified registration period. (This rule may be waived only upon the written recommendation of the dean.)

*The offices of the registrar and comptroller are open daily, not including Saturday, from 9:00 A. M. to 5:00 P. M., and on Saturday from 9:00 A. M. to 12:30 P. M. On Saturday, September 23, 1933, the offices will remain open until 5:00 P. M.

Advance registration is encouraged.

THE UNIVERSITY OF MARYLAND

Control of the University of Maryland is vested in a Board of nine Regents, appointed by the Governor and confirmed by the Senate for terms of nine years each. The general administration of the University is vested in the President. The University Council is an advisory body, composed of the President, the Vice-President, the Director of the Agricultural Experiment Station, the Director of the Extension Service, and the Deans. The University Council acts upon all matters having relation to the University as a whole or to cooperative work between the constituent groups. Each school has its own Faculty Council, composed of the Dean and members of its Faculty; each Faculty Council controls the internal affairs of the group it represents.

The University has the following educational organization:

- The College of Agriculture,
- The College of Engineering,
- The College of Arts and Sciences,
- The School of Medicine,
- The School of Law,
- The School of Dentistry,
- The School of Pharmacy,
- The College of Education,
- The College of Home Economics,
- The Graduate School,
- The Summer School,
- The Department of Physical Education and Recreation.

The Schools of Medicine, Law, Dentistry and Pharmacy are located in Baltimore; the others in College Park, Maryland.

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E. P. SMITH, M.D., Associate in Obstetrics.
THOMAS K. GALVIN, M.D., Associate in Gynecology.
FRANKLIN B. ANDERSON, M.D., Associate in Diseases of the Nose and Throat and Otology.
C. A. REIFSCHNEIDER, M.D., Associate in Surgery.
AUSTIN H. WOOD, M.D., Associate in Genito-Urinary Surgery.
ALBERT E. GOLDSTEIN, M.D., Associate in Pathology.
H. M. BUBERT, M.D., Associate in Medicine and Assistant in Bacteriology.
ZACHARIAH MORGAN, M.D., Associate in Gastro-Enterology.
J. MASON HUNDLEY, JR., M.A., M.D., Associate in Gynecology.
LEO BRADY, M.D., Associate in Gynecology.
J. G. M. REESE, M.D., Associate in Obstetrics.
M. A. NOVEY, A.B., M.D., Associate in Obstetrics and Instructor in Pathology.
W. S. LOVE, JR., A.B., M.D., Associate in Medicine and Instructor in Pathology.
LEON FREEDOM, M.D., Associate in Neurology and Instructor in Pathology.

- SAMUEL S. GLICK, M.D., Associate in Pediatrics.
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W. J. TODD, M.D., Associate in Pediatrics.
WILLIAM G. GEYER, M.D., Associate in Pediatrics.
CLEWELL HOWELL, M.D., Associate in Pediatrics.
WALTER C. MERKEL, M.D., Associate in Pathology.
JOHN G. MURRAY, JR., M.D., Associate in Obstetrics.
MONTE EDWARDS, M.D., Associate in Surgery, Anatomy and Diseases of the
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I. O. RIDGLEY, M.D., Associate in Surgery.
R. D. WEST, M.D., Associate in Ophthalmology.
FREDERICK B. DART, M.D., Associate in Pediatrics.
A. H. FINKELSTEIN, M.D., Associate in Pediatrics.
EUGENE L. FLIPPIN, M.D., Associate in Roentgenology.
RICHARD G. COBLENTZ, M.D., Associate in Neurological Surgery.
J. S. EASTLAND, M.D., Associate in Medicine.
THOMAS C. WOLFF, M.D., Associate in Medicine.
N. CLYDE MARVEL, M.D., Associate in Surgery.
L. J. MILLAN, M.D., Associate in Genito-Urinary Surgery.
R. F. MCKENZIE, M.D., Associate in Diseases of the Nose and Throat.
T. NELSON CAREY, M.D., Associate in Medicine and Physician in Charge of
Medical Care of Students.
K. D. LEGGE, M.D., Associate in Genito-Urinary Surgery.
E. P. H. HARRISON, A.B., M.D., Associate in Obstetrics.
HENRY F. BUETTNER, M.D., Instructor in Bacteriology.
J. A. F. PFEIFFER, M.D., Instructor in Bacteriology.
HARRY GOLDSMITH, M.D., Instructor in Psychiatry.
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M. KOPPELMAN, M.D., Instructor in Gastro-Enterology.
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M. G. GICHNER, M.D., Instructor in Medicine.
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W. R. JOHNSON, M.D., Instructor in Surgery and Pathology.
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MARIE KOVNER, M.D., Instructor in Pediatrics.
WETHERBEE FORT, M.D., Instructor in Medicine.
HENRY SHEPPARD, M.D., Instructor in Medicine.
FRANCIS ELLIS, A.B., M.D., Instructor in Dermatology.

- RUTH MUSSER, B.A., M.S., Instructor in Pharmacology.
BENJAMIN ABESHOUSE, M.D., Instructor in Pathology.
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JOSEPH POKORNEY, M.D., Instructor in Histology.
JAROSLAV HULLA, B.S., M.D., Instructor in Histology.
M. HAROLD GOODMAN, M.D., Instructor in Dermatology and Pathology.
A. C. MONNINGER, M.D., Instructor in Dermatology.
HENRY F. GRAFF, A.B., M.D., Instructor in Ophthalmology.
S. DEMARCO, M.D., Instructor in Surgery.
KARL J. STEINMUELLER, A.B., M.D., Instructor in Surgery.
H. S. RUBINSTEIN, B.S., M.D., Instructor in Anatomy and Assistant in Neurology.
FRANK J. GERAGHTY, M.D., Instructor in Pathology and Medicine.
WILLIAM ELLSWORTH EVANS, M.S., Instructor in Pharmacology.
FRANK A. PACIENZA, M.D., Instructor in Refraction.
SAMUEL MORRISON, M.D., Instructor in Gastro-Enterology.
HENRY C. SMITH, M.D., Instructor in Medicine.
L. P. GUNDRY, M.D., Instructor in Medicine.
SAMUEL T. HELMS, M.D., Instructor in Medicine and Genito-Urinary Surgery and Assistant in Pediatrics.
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J. J. LEYKO, M.D., Instructor in Surgery.
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J. G. ONNEN, M.D., Assistant in Surgery.
H. B. McELWAIN, M.D., Assistant in Surgery.
ROBERT W. JOHNSON, M.D., Assistant in Pathology and Surgery.
A. V. BUCHNESS, M.D., Assistant in Surgery.
Z. VANCE HOOPER, M.D., Assistant in Gastro-Enterology.
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CARL BENSON, M.D., Assistant in Medicine.
A. SCAGNETTI, M.D., Assistant in Medicine.

BERNARD J. COHEN, M.D., Assistant in Medicine.
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MARGARET B. BALLARD, M.D., Assistant in Obstetrics.
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J. G. BENESUNES, M.D., Assistant in Orthopaedic Surgery.
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MORRIS FINE, M.D., Assistant in Medicine and Pediatrics.
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J. HOWARD BURNS, M.D., Assistant in Medicine.
LUTHER E. LITTLE, M.D., Assistant in Surgery and Anatomy.
BENJAMIN S. RICH, M.D., Assistant in Otology.
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DAVID TENNER, M.D., Assistant in Medicine.
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LAWRENCE SERRA, M.D., Assistant in Medicine.
J. G. FEMAN, M.D., Assistant in Medicine.
E. M. REESE, M.S., Assistant in Medicine.
H. WILLIAM PRIMAKOFF, M.D., Assistant in Gastro-Enterology.
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C. W. PEAKE, M.D., Assistant in Surgery.
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JAMES C. OWINGS, M.D., Assistant in Surgery.
SAMUEL A. VEST, M.D., Assistant in Pathology.
JAMES G. ARNOLD, M.D., Assistant in Pathology.
KENNETH B. BOYD, M.D., Assistant in Obstetrics.
GEORGE L. WISSIG, M.D., Assistant in Obstetrics.

University of Maryland School of Medicine

AND

College of Physicians and Surgeons

As a result of the merger accomplished in 1915 the combined schools offer the student the abundant resources of both institutions, and, in addition, by earlier combination with the Baltimore Medical College, the entire equipment of three large medical colleges.

The School of Medicine of the University of Maryland is one of the oldest foundations for medical education in America, ranking fifth in point of age among the medical colleges of the United States. It was organized in 1807, and chartered in 1808, under the name of the College of Medicine of Maryland, and its first class was graduated in 1810. In 1812 the College was empowered by the Legislature to annex three other colleges or faculties: Divinity, Law, and Arts and Sciences; and the four colleges thus united were "constituted an University by the name and under the title of the University of Maryland."

Established thus for more than a century, the School of Medicine of the University of Maryland has always been a leading medical college, especially prominent in the South and widely known and highly honored throughout the country.

The beautiful college building at Lombard and Greene Streets, erected in 1812, is the oldest structure in America devoted to medical teaching. Here was founded one of the first medical libraries and the first medical college library in the United States.

Here for the first time in America dissecting was made a compulsory part of the curriculum; here instruction in Dentistry was first given (1837) and here were first installed independent chairs for the teaching of Diseases of Women and Children (1867), and of Eye and Ear Diseases (1873).

The School of Medicine was one of the first to provide for adequate clinical instruction by the erection in 1823 of its own hospital, and in this hospital intramural residency for the senior student was first established.

In 1913, juncture was brought about with the Baltimore Medical College, an institution of thirty-two years' growth. By this association the facilities of the School of Medicine were enlarged in faculty, equipment and hospital connection.

The College of Physicians and Surgeons was incorporated in 1872, and established on Hanover Street in a building afterwards known as the Maternite, the first obstetrical hospital in Maryland. In 1878 union was effected with the Washington University School of Medicine, in existence since 1827, and the college was removed to its present location at Calvert and Saratoga streets. By this arrangement medical control of the City Hospital, now the Mercy Hospital, was obtained, and on this foundation in 1899 the present admirable college building was erected.

ORGANIZATION OF THE SCHOOL OF MEDICINE

LABORATORY AND CLINICAL FACILITIES

The Laboratories

The laboratories are located at two centers, the group of buildings at Greene and Lombard Streets, and at 32 and 34 South Paca Street. The schedule is so adjusted that the laboratory periods are placed with a view of obviating unnecessary movement on the part of the classes. The building known as Gray Laboratory, at Greene and Lombard Streets, houses three departments. The Anatomical Laboratory is placed upon the top floor, where skylights and an auxiliary modern system of electric lighting give adequate illumination of the subjects. The Department of Pharmacology occupies the second floor. There is a large room for the general student laboratory, which is thoroughly equipped with apparatus of recent acquisition, and in addition contains many instruments of unique and original design. With office and stockroom adjoining, this laboratory is complete for student experimentation. On the first floor of Gray Laboratory is the Department of Physiology. In addition to the

large student laboratory, which is constructed for groups of fifty-eight students, there are rooms for the departmental office, preparation of material, and storage of apparatus. An additional room is devoted exclusively to mammalian experiments. In this building there is maintained an animal room where is kept an abundance of material for experimental purposes. The embalming and storage plant for the Department of Anatomy is in physical connection with the building and its special departments. The laboratories of physiology and pharmacology are completely equipped with apparatus lockers, so that, in accord with the best ideas of instruction, the students work in groups of two each, and each group has sufficient apparatus, so that the experimental work can be carried on without delay or recourse to a general stockroom.

The laboratories of Pathology, Bacteriology, Biochemistry and Clinical Pathology are located in the Medical laboratory building on Greene Street north of Lombard.

The Departments of Pathology, Bacteriology and Clinical Pathology use, conjointly, the large modernly equipped student laboratory on the second floor. The capacity is one hundred students. On the second floor also there are students' preparation rooms for the making and sterilization of media, cold storage and incubating rooms and research laboratories for the departments of Bacteriology and Clinical Pathology.

On the main floor of this building are the offices, library, research and technical rooms of the Departments of Pathology and Bacteriology. The Department of Art also occupies quarters on this floor. The basement is given over to teaching museums, store rooms, students' locker room and lavatories.

The Department of Biological Chemistry is housed on the top floor of this building. The space allotted to teaching includes a large student laboratory equipped with one hundred and thirty-two commodious locker units, supplied with gas, hot and cold water, vacuum and direct current service, a special apparatus room, a warm room, a colorimeter room, a balance room, a first-aid room and a stockroom. These rooms are appointed with modern laboratory furniture and apparatus, a constant temperature and ventilating system, and equipped and arranged for economic use of the students' time.

Adjoining the students' space are private offices and laboratories of the staff, a departmental library, a shop and a preparation room.

In the Main Building is the Museum of Anatomy, where are arranged for student reference, specimens which represent the careful selection of material over a period of many years. In the University Hospital is the Student Laboratory for the analytical studies by those students who are serving as clinical clerks on the wards. A similar laboratory is maintained in the building at the northwest corner of Saratoga and Calvert Streets, for the student work on the wards of the Mercy Hospital.

At 32 and 34 South Paca Street are the Laboratories of Histology and Embryology. These laboratories accommodate one hundred and twenty-five students, or the full class, and are equipped with necessary lockers for microscopes and apparatus. The department housed in this building is provided with individual offices, preparation and stockrooms.

Clinical Facilities

UNIVERSITY HOSPITAL

The University Hospital, which is the property of the University of Maryland, is the oldest institution for the care of the sick in the State of Maryland. It was opened in September, 1823, under the name of the Baltimore Infirmery, and at that time consisted of but four wards, one of which was reserved for eye patients.

The present hospital has a capacity of two hundred and fifty beds, devoted to general medicine, surgery, obstetrics and the various medical and surgical specialties. It is equipped with a thoroughly modern X-ray department and clinical laboratory, and a post-mortem building which is constructed with special reference to the instruction of students in pathological anatomy.

The hospital is situated opposite the medical school buildings, so that the students lose no time in passing from the lecture halls and laboratories to the clinical amphitheater, dispensary and wards.

Owing to its situation, adjacent to the largest manufacturing district of the city and the shipping district, large numbers

of accident patients are received. These, combined with a large number of sick seamen and with patients from our own city, furnish a large amount of clinical material. Accommodations for twenty-five obstetrical patients are provided in the hospital for the purpose of furnishing actual obstetrical experience to each member of the graduating class.

In connection with the University Hospital an outdoor obstetrical clinic is conducted, in which every patient is given careful prenatal supervision, is attended during labor by a senior student, supervised by a hospital physician and assisted by a graduate nurse, and is visited during the puerperium by the attending student and graduate nurse. Careful prenatal, labor and puerperal records are kept, making this work of extreme value to the medical student, not only from the obstetrical standpoint, but also helping him to appreciate the value of social service and public health work.

During the year ending December 31, 1932, 406 cases were delivered in the hospital and 1,303 cases in the outdoor department. Students in the graduating class delivered or observed an average of fourteen cases, each student being required to deliver twelve cases.

The dispensaries associated with the University Hospital and the Mercy Hospital are organized upon a uniform plan in order that the teaching may be the same in each. Each dispensary has the following departments: Medicine, Surgery, Obstetrics, Pediatrics, Eye and Ear, Genito-Urinary, Gynecology, Gastro-Enterology, Neurology, Orthopaedics, Proctology, Dermatology, Throat and Nose, Tuberculosis and Psychiatry.

All students in their junior year work in the departments of Medicine and Surgery each day in one of the dispensaries.

All students in their senior year work in the special departments one hour each day.

HOSPITAL COUNCIL

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 A. J. LOMAS, M.D., C.M., D.P.H., *Superintendent of the Hospital.*
 MISS ANNIE CRIGHTON, R.N., *Superintendent of Nurses.*
 G. M. SHRIVER, ESQ.
 W. B. BROOKS, ESQ.
 MISS FLORENCE SADTLER, *Representing Woman's Auxiliary Board.*

Representing Hospital Staff

PAGE EDMUNDS, M.D.

C. REID EDWARDS, M.D.

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FRANK KEATING, M.D.

UNIVERSITY HOSPITAL STAFF

Superintendent of the Hospital, A. J. LOMAS, M.D., C.M., D. P. H.

Physicians

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HARRY M. STEIN, M.D.

G. CARROLL LOCKARD, M.D.

WALTER A. BAETJER, M.D.

JOSEPH E. GICHNER, M.D.

C. C. HABLSTON, M.D.

WILLIAM H. SMITH, M.D.

L. A. M. KRAUSE, M.D.

WILLIAM S. LOVE, JR., M.D.

Gastro-Enterologists

JULIUS FRIEDENWALD, A.M., M.D.

J. HARRY ULLRICH, M.D.

THEODORE H. MORRISON, M.D.

Neurologist

IRVING J. SPEAR, M.D.

Psychiatrist

R. M. CHAPMAN, M.D.

Pediatricians

C. LORING JOSLIN, M.D.

CLARENCE E. MACKE, M.D.

ALBERT JAFFE, M.D.

Pathologists

HUGH R. SPENCER, M.D.

S. LLOYD JOHNSON, M.D.

Surgeons

RANDOLPH WINSLOW, A.M., M.D., LL.D.	ARTHUR M. SHIPLEY, M.D., Sc.D
NATHAN WINSLOW, M.D.	PAGE EDMUNDS, M.D.
CHARLES REID EDWARDS, M.D.	FRANK S. LYNN, M.D.

Laryngologists

EDWARD A. LOOPER, M.D.	FRANKLIN B. ANDERSON, M.D.
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Proctologists

G. MILTON LINTHICUM, A.M., M.D.	J. DAWSON REEDER, M.D.
MONTE EDWARDS, M.D.	

Orthopaedic Surgeons

ALLEN FISKE VOSHELL, A.B., M.D.	COMPTON RIELY, M.D.
MOSES GELLMAN, B.S., M.D.	

Genito-Urinary Surgeons

W. H. TOULSON, A.B., M.Sc., M.D.	LYLE J. MILLAN, M.D.
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Roentgenologists

HENRY J. WALTON, M.D.	EUGENE L. FLIPPIN, M.D.
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Dermatologists

MELVIN S. ROSENTHAL, M.D.	HARRY M. ROBINSON, M.D.
---------------------------	-------------------------

Bronchoscopist

EDWARD A. LOOPER, M.D.

Anaesthetists

S. GRIFFITH DAVIS, M.D.	GEORGE H. YEAGER, B.S., M.D.
E. HOLLISTER DAVIS, M.D.	MARY J. O'BRIEN, R.N.

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M. A. NOVEY, A.B., M.D.	J. G. M. REESE, M.D.
ISADOR A. SIEGEL, A.B., M.D.	E. P. H. HARRISON, JR., A.B., M.D.

Ophthalmologists

CLYDE A. CLAPP, M.D.	WILLIAM TARUN, M.D.
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Otologist

J. W. DOWNEY, JR., M.D.

Gynecologists

W. S. GARDNER, M.D.	HUGH BRENT, M.D.
J. M. HUNDLEY, JR., M.D.	R. G. WILLSE, M.D.
LEO BRADY, M.D.	THOS. K. GALVIN, M.D.

UNIVERSITY HOSPITAL RESIDENT AND INTERN STAFF
1933-1934

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<i>Resident in Surgery</i>	EMIL J. C. HILDEBRAND, M.D.
<i>Assistant Resident in Surgery</i>	FRANK WILSON, JR., M.D.
<i>Assistant Resident in Surgery</i>	HARRY C. HULL, JR., M.D.
<i>Assistant Resident in Surgery</i>	R. RICHARD LOUFT, M.D.
<i>Assistant Resident in Surgery</i>	C. RICHARD AHROON, JR., M.D.
<i>Resident in Nose and Throat</i>	MARION BUTLER ROBERTS, M.D.
<i>Resident in Medicine</i>	HARRY VERNON LANGELOTTIG, M.D.
<i>Assistant Resident in Medicine</i>	MILFORD HARSH SPRECHER, M.D.
<i>Assistant Resident in Medicine</i>	J. FRANCIS WARREN, M.D.
<i>Assistant Resident in Medicine</i>	HERBERT P. LENTON, M.D.
<i>Resident in Obstetrics</i>	BERNARD W. DONOHUE, M.D.
<i>Assistant Resident in Obstetrics</i>	JOHN EDWARD SAVAGE, M.D.
<i>Resident in Gynecology</i>	HARRY S. SHELLEY, M.D.
<i>Resident in Roentgenology</i>	ERVIN F. LYON, M.D.

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Medicine

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S. C. FELDMAN, M.D.	J. G. FEMAN, M.D.
M. A. FINE, M.D.	W. H. TRIPLETT, M.D.
Z. VANCE HOOPER, M.D.	

Diseases of the Stomach and Intestines

J. H. ULLRICH, Ph.G., M.D., <i>Chief of Clinic</i>	
JOSEPH SINDLER, M.D.	M. S. KOPPELMAN, M.D.
Z. MORGAN, M.D.	Z. VANCE HOOPER, M.D.
C. VICTOR RICHARDS, M.D.	SAMUEL MORRISON, M.D.

Neurology

IRVING J. SPEAR, M.D., <i>Professor of Neurology</i>
G. M. SETTLE, M.D., <i>Associate Professor of Neurology</i>
LEON FREEDOM, M.D., <i>Chief of Clinic</i>
H. S. RUBINSTEIN, M.D., <i>Chief of Clinic</i>

Mental Hygiene

RALPH P. TRUITT, M.D., *Director*
H. W. NEWELL, M.D.

Diseases of the Lungs

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H. C. SMITH, M.D.

Diseases of Metabolism

H. M. STEIN, M.D., *Chief of Clinic*
L. P. GUNDRY, M.D.

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Allergy Clinic

H. M. BUBERT, M.D., *Chief of Clinic*

Pediatrics

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WILLIAM G. GEYER, M.D.	MORRIS A. FINE, M.D.
R. M. HENING, M.D.	WILLIAM G. QUEEN, M.D.
MARIE KOVNER, M.D.	HARRY A. RUTLEDGE, M.D.
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SAMUEL S. GLICK, M.D.	SAMUEL T. HELMS, M.D.

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E. S. JOHNSON, M.D.	W. W. WALKER, M.D.
W. R. JOHNSON, M.D.	A. V. BUCHNESS, M.D.
J. FRANK HEWITT, M.D.	W. N. McFAUL, JR., M.D.
JAS. C. OWINGS, M.D.	GEO. H. YAEGER, M.D.
LUTHER E. LITTLE, M.D.	C. W. PEAKE, M.D.

Orthopaedic Surgery

ALLEN FISKE VOSHELL, A.B., M.D., *Professor of Orthopaedic Surgery*
MOSES GELLMAN, B.S., M.D. I. H. MASERITZ, M.D.
J. G. BENESUNES, M.D.

*Genito-Urinary*W. H. TOULSON, M.D., *Chief of Clinic*

SAMUEL T. HELMS, M.D.

MILTON C. LANG, M.D.

L. K. FARGO, M.D.

LYLE J. MILLAN, M.D.

*Roentgenology*HENRY J. WALTON, M.D., *Chief of Clinic*

EUGENE L. FLIPPIN, M.D.

*Dermatology*H. M. ROBINSON, M.D., *Chief of Clinic*

M. H. GOODMAN, M.D.

FRANCIS ELLIS, M.D.

A. C. MONNINGER, M.D.

*Nose and Throat*EDWARD A. LOOPER, M.D., *Professor of Diseases of the Nose and Throat*FRANKLIN B. ANDERSON, M.D., *Chief of Clinic*

THOMAS R. O'ROURK, M.D.

BIRCKHEAD MCGOWAN, M.D.

JOSEPH NURKIN, M.D.

BENJAMIN S. RICH, M.D.

*Colon and Rectum*MONTE EDWARDS, M.D., *Chief of Clinic**Gynecology*

J. M. HUNDLEY, JR., M.D.

JAMES J. MARSTON, M.D.

WILLIAM J. FULTON, M.D.

LEO BRADY, M.D.

JOHN T. HIBBITTS, M.D.

KENNETH BOYD, M.D.

JOSEPH V. CASTAGNA, M.D.

E. EUGENE COVINGTON, M.D.

THOMAS S. BOYER, M.D.

*Obstetrics*L. H. DOUGLAS, M.D., *Chief of Clinic*

J. G. M. REESE, M.D.

M. ALEXANDER NOVEY, M.D.

MAXWELL MAZER, M.D.

ISADORE A. SIEGEL, A.B., M.D.

MARGARET B. BALLARD, M.D.

S. K. WALLACE, M.D.

E. P. H. HARRISON, A.B., M.D.

KENNETH B. BOYD, M.D.

GEORGE L. WISSIG, M.D.

*Eye and Ear*CLYDE A. CLAPP, M.D., *Professor of Ophthalmology*J. W. DOWNEY, M.D., *Professor of Otology*

JOHN G. RUNKEL, M.D.

H. F. GRAFF, A.B., M.D.

FRANK A. PACIENZA, M.D.

*Social Service*MISS GRACE PEARSON, *Directress*

UNIVERSITY HOSPITAL DISPENSARY

Report from October 1, 1931, to September 30, 1932

DEPARTMENTS	NEW CASES	OLD CASES	TOTAL
Pediatrics	3,415	22,002	25,417
Dermatology	7,263	14,288	21,551
Surgery	3,248	13,631	16,879
Orthopedics	1,263	8,853	10,116
Obstetrics	2,142	7,955	10,097
Medicine	1,610	8,091	9,701
Genito-Urinary	1,291	6,535	7,826
Gynecology	1,524	3,196	4,720
Eye	1,161	3,196	4,357
Nose and Throat.....	1,482	1,604	3,086
Gastro-Intestinal	381	1,743	2,124
Tuberculosis	490	1,305	1,795
Neurology	270	789	1,059
Oncology	123	886	1,009
Ear	423	494	917
Cardiology	119	680	799
Proctology	200	589	789
Cystoscopy	56	306	362
Mental Hygiene	599	524	1,123
Total.....	27,060	96,667	123,727

MERCY HOSPITAL

The Sisters of Mercy first assumed charge of the Hospital at the corner of Calvert and Saratoga Streets, then owned by the Washington University, in 1874. By the merger of 1878 the Hospital came under the control of the College of Physicians and Surgeons, but the Sisters continued their work of administering to the patients.

In a very few years it became apparent that the City Hospital, as it was then called, was much too small to accommodate the rapidly growing demands upon it. However, it was not until 1888 that the Sisters of Mercy, with the assistance of the Faculty of the College of Physicians and Surgeons, were able to lay the cornerstone of the present Hospital. This building was completed and occupied late in 1889. Since then the growing demands for more space have compelled the erection of additions, until now there are accommodations for 275 patients.

In 1909 the name was changed from The Baltimore City Hospital to Mercy Hospital.

The clinical material in the free wards is under the exclusive control of the Faculty of the University of Maryland School of Medicine and College of Physicians and Surgeons.

The Hospital adjoins the College building, and all surgical patients from the public wards are operated upon in the College operating rooms. This union of the Hospital and College buildings greatly facilitates the clinical teaching.

Mercy Hospital is the hospital of the United Railways and Electric Company of Baltimore City, and receives patients from the Baltimore and Ohio Railroad Company and from the Pennsylvania Railroad Company and its branches.

MERCY HOSPITAL STAFF

BOARD OF GOVERNORS

SAMUEL M. SHOEMAKER, ESQ., *Chairman*

MOTHER M. RICARDA

SISTER M. HELEN

SISTER M. HILDEGARDE

SISTER M. VINCENT

SISTER M. CORNELIA

DR. ALEXIUS MCGLANNAN

DR. WALTER D. WISE

DR. CHARLES E. BRACK

DR. WAITMAN F. ZINN

DR. STANDISH MCCLEARY

MERCY HOSPITAL STAFF

SURGICAL DIVISION

ALEXIUS MCGLANNAN, A.M., M.D., LL.D. ELLIOTT HUTCHINS, A.M., M.D.

W. D. WISE, M.D.

A. M. EVANS, M.D.

C. F. BLAKE, M.D.

F. L. JENNINGS, M.D.

Associate Surgeons

R. H. LOCHER, M.D.

I. O. RIDGELY, M.D.

T. R. CHAMBERS, A.M., M.D.

N. C. MARVEL, M.D.

D. J. PESSAGNO, M.D.

H. F. BONGARDT, M.D.

J. J. LEYKO, M.D.

Assistant Surgeons

CHARLES MAXSON, M.D.

DWIGHT MOHR, M.D.

H. B. McELWAIN, M.D.

J. W. NELSON, M.D.

T. J. TOUHEY, M.D.

JOHN A. O'CONNOR, M.D.

SIMON BRAGER, M.D.

Ophthalmologist and Otologist

HARRY FRIEDENWALD, A.B., M.D.

Associates

H. K. FLECK, M.D.

J. W. DOWNEY, M.D.

Rhinologists and Laryngologists

FRANK D. SANGER, M.D.

GEORGE W. MITCHELL, M.D.

WAITMAN F. ZINN, M.D.

RAYMOND MCKENZIE, M.D.

Associates

F. A. PACIENZA, M.D.

BIRCKHEAD MCGOWAN, M.D.

F. A. KAYSER, M.D.

Proctologist

CHARLES F. BLAKE, M.D.

Orthopaedic Surgeon

ALBERTUS COTTON, M.D.

Associate

H. L. ROGERS, M.D.

Urologist

ALEXANDER J. GILLIS

Associate

KENNETH B. LEGGE, M.D.

Dentist

J. D. FUSCO, D.D.S.

MEDICAL DIVISION

Physicians

MAURICE C. PINCOFFS, B.S., M.D.

STANDISH MCCLEARY, M.D.

CARY B. GAMBLE, M.D.

HARVEY G. BECK, M.D.

Associates

HUBERT C. KNAPP, M.D.

C. C. W. JUDD, M.D.

H. R. PETERS, M.D.

BARTUS T. BAGGOTT, M.D.

GEORGE MCLEAN, M.D.

A. A. SUSSMAN, M.D.

L. A. M. KRAUSE, M.D.

JOHN E. LEGGE, M.D.

J. S. EASTLAND, M.D.

Assistant Physicians

WETHERBEE FORT, M.D.

S. A. TUMMINELLO, M.D.

J. M. MILLER, M.D.

Gastro-Enterologist

JULIUS FRIEDENWALD, A.M., M.D.

Associates

T. FREDERICK LEITZ, M.D.

THEODORE MORRISON, M.D.

Assistants

MAURICE FELDMAN, M.D.

JOSEPH SINDLER, M.D.

Pediatricians

JOHN RUHRÄH, M.D.

EDGAR B. FRIEDENWALD, M.D.

Associate Pediatrician

F. B. SMITH, M.D.

Assistant Pediatricians

W. J. SCHMITZ, M.D.

G. B. MANSDORFER, M.D.

Neurologist and Psychiatrist

ANDREW C. GILLIS, M.D.

Associate

MILFORD LEVY, M.D.

Dermatologist

MELVIN ROSENTHAL, M.D.

MERCY HOSPITAL STAFF

OBSTETRICAL DIVISION

CHARLES E. BRACK, M.D.

E. P. SMITH, M.D.

A. SAMUELS, M.D.

J. J. ERWIN, M.D.

W. S. GARDNER, M.D.

T. K. GALVIN, M.D.

G. A. STRAUSS, M.D.

E. S. EDLAVITCH, M.D.

FRANK K. MORRIS, M.D.

GYNECOLOGICAL DIVISION

Gynecologists

WILLIAM S. GARDNER, M.D.

ABRAM SAMUELS, M.D.

GEORGE A. STRAUSS, M.D.

E. P. SMITH, M.D.

T. K. GALVIN, M.D.

Associate

J. J. ERWIN, M.D.

Assistants

E. S. EDLAVITCH, M.D.

FRANK K. MORRIS, M.D.

PATHOLOGICAL DIVISION

STANDISH MCCLEARY, M.D.

HUGH R. SPENCER, M.D.

Clinical Pathologists

H. T. COLLENBERG, M.D.

H. R. PETERS, M.D.

EMIL G. SCHMIDT, Ph.D.

Technicians

SISTER M. JOAN, Ph.G., R.N.

ELEANOR BEHR, R.N.

FRANCES DONOVAN, R.N.

X-RAY DEPARTMENT

Radiographers

ALBERTUS COTTON, M.D.

HARRY L. ROGERS, M.D.

WILLIAM GREENFIELD, M.D.

Technician

SISTER M. ANTONIA, R.N.

MERCY HOSPITAL RESIDENT STAFF

Resident Surgeon

REYNOLDSON BUTTERWORTH, M.D.

Assistant Resident Surgeons

RAYMOND F. HELFRICH, M.D.

JOSEPH JEPPI, M.D.

HOWARD ZUPNIK, M.D.

Resident Physician

HOWARD BURNS, M.D.

Assistant Resident Physician

ARTHUR KARFGIN, M.D.

Resident Gynecologist

W. MERLE WARMAN, M.D.

Interne Staff 1933-1934

JOSEPH A. BELZ, M.D.

LEON A. KOCHMAN, M.D.

HAROLD C. DIEHL, M.D.

JOHN M. MACKEN, M.D.

PHILIP D. FLYNN, M.D.

DANIEL R. ROBINSON, M.D.

FRANK A. FRANKLIN, M.D.

MAURICE H. SCHNEIMAN, M.D.

MEYER H. ZURAVIN, M.D.

MERCY HOSPITAL DISPENSARY STAFF

Surgery

Supervisor JULIUS J. LEYKO, M.D.

Attending Surgeons

D. H. MOHR, M.D.
I. O. RIDGLEY, M.D.
JOHN O'CONNOR, M.D.

H. F. BONGARDT, M.D.
T. J. TOUHEY, M.D.
J. W. NELSON, M.D.

Genito-Urinary Surgery

A. J. GILLIS, M.D.

K. O. LEGGE, M.D.

Orthopaedic Surgery

ALBERTUS COTTON, M.D.

HARRY L. ROGERS, M.D.

I. H. MASERITZ, M.D.

Medicine

Supervisor M. C. PINCOFFS, B.S., M.D.

Attending Physicians

HENRY SHEPPARD, M.D. }
EARL L. CHAMBERS, M.D. } *Chiefs of Clinic*

J. M. MILLER, M.D.

S. SNYDER, M.D.

S. A. TUMMINELLO, M.D.

Cardiovascular Diseases

T. C. WOLFF, M.D., *Chief of Clinic*

Diseases of the Lungs

S. SNYDER, M.D., *Chief of Clinic*

Diseases of Metabolism

J. S. EASTLAND, M.D., *Chief of Clinic*

Allergic Diseases

H. M. BUBERT, M.D., *Chief of Clinic*
S. SNYDER, M.D.

Diseases of Stomach

Supervisor, JULIUS FRIEDENWALD, A.M., M.D.

Attending Physicians

T. FREDERICK LEITZ, M.D.
M. FELDMAN, M.D.

THEODORE H. MORRISON, M.D.
JOSEPH SINDLER, M.D.

I. I. LEVY, M.D.

Esophagoscopist

WAITMAN F. ZINN, M.D.

*Nervous Diseases**Supervisor, A. C. GILLIS, M.D.**Attending Physicians*

MILFORD LEVY, M.D.

MIRIAM F. DUNN, M.D.

*Pediatrics**Supervisor, EDGAR B. FRIEDENWALD, M.D.**Attending Physician, W. J. SCHMITZ, M.D.**Gynecology**Supervisors*

W. S. GARDNER, M.D.

A. SAMUELS, M.D.

Attending Surgeons

GEORGE A. STRAUSS, M.D.

C. F. J. COUGHLIN, M.D.

J. J. ERWIN, M.D.

E. EDLAVITCH, M.D.

F. K. MORRIS, M.D.

F. W. GILLIS, M.D.

Diseases of Nose and Throat

W. F. ZINN, M.D.

R. F. MCKENZIE, M.D.

BENJAMIN S. RICH, M.D.

HORACE STRICKLAND, M.D.

B. MCGOWAN, M.D.

Diseases of Eye and Ear

H. F. FLECK, M.D.

M. RASKIN, M.D.

J. I. KEMLER, M.D.

F. A. PACIENZA, M.D.

Dermatology

MELVIN ROSENTHAL, M.D.

LLEWELLYN LORD, M.D.

Social Service Department

SISTER M. HILDEGARD

VIRGINIA JUDGE

MERCY HOSPITAL DISPENSARY

	(1932)		
	OLD	NEW	TOTAL
Surgery	3,627	1,353	4,980
Medicine	1,696	1,271	2,967
Cardiac	145	71	216
Diabetic	219	8	227
Gynecology	781	433	1,214
Eye and Ear.....	500	319	819
Nose and Throat.....	948	733	1,681
Neurology	501	131	632
Pediatrics	255	283	598
Gastro-Intestinal	329	75	404
Dental	76	203	279
Rectal	116	56	172
Orthopedics	1,443	404	1,847
Skin	564	338	902
Genito-Urinary	2,463	476	2,939
TOTAL.....	13,663	6,154	19,817

OTHER CLINICAL FACILITIES

THE BALTIMORE CITY HOSPITALS

The clinical advantages of the University have been largely increased by the liberal decision of the Board of Supervisors of City Charities to allow the immense material of these hospitals to be used for the purpose of medical education. There are daily visits and clinics in medicine and surgery by the Staff of the Hospitals. The autopsy material is unsurpassed in this country in amount, thoroughness of study, and the use made of it in medical teaching.

The Baltimore City Hospitals consist of the following separate hospitals:

The General Hospital, 209 beds.

The Hospital for Chronic Cases, 427 beds.

The Hospital for Tuberculosis, 172 beds.

The Psychopathic Hospital, 325 beds.

Infirmery (Home for Aged), 911 beds.

STAFF OF BALTIMORE CITY HOSPITALS

R. E. LONGAN, BRIG. GEN., *Superintendent*

VISITING STAFF

THOMAS R. BOGGS, S.B., M.D., *Physician-in-Chief*.
ARTHUR M. SHIPLEY, ScD., M.D., *Surgeon-in-Chief*.
C. C. HABLSTON, M.D., *Physician-in-Chief, Tuberculosis Hospital*.
HARRY GOLDSMITH, M.D., *Physician-in-Chief, Psychopathic Hospital*.
S. S. BLACKMAN, A.B., M.D., *Visiting Pathologist*.
SAMUEL A. VEST, M.D., *Resident Pathologist*.

CONSULTING STAFF

Gynecologists

R. G. WILLSE, M.D.

J. MASON HUNDLEY, JR., M.A., M.D.

Urologist

W. H. TOULSON, A.B., M.D.

Laryngologist

EDWARD A. LOOPER, M.D.

Pediatrician

LAWSON WILKINS, M.D.

Neurological Surgeon

CHARLES BAGLEY, M.D.

Psychiatrist

ESTHER L. RICHARDS, M.D.

Orthopaedist

ALLEN FISKE VOSHELL, A.B., M.D.

H. S. WHEELER, M.D.

Proctologist

MONTE EDWARDS, M.D.

Assisting Visiting Physician

CHARLES R. AUSTRIAN, M.D.

Assisting Visiting Surgeons

FRANK S. LYNN, M.D.

C. A. REIFSCHNEIDER, M.D.

E. M. HANRAHAN, A.B., M.D.

T. B. AYCOCK, M.D.

Assistant Neurologist

O. R. LANGWORTHY, M.D.

Assistant Physician—Tuberculosis

HENRY C. SMITH, M.D.

Ophthalmologist

CECIL BAGLEY, M.D.

Obstetrician

LOUIS H. DOUGLASS, M.D.

Dermatologist

ISAAC R. PELS, M.D.

Roentgenologist

JOHN W. PIERSON, M.D.

THE JAMES LAWRENCE KERNAN HOSPITAL AND INDUSTRIAL
SCHOOL OF MARYLAND FOR CRIPPLED CHILDREN

This institution is situated on an estate of 75 acres at Hillsdale. The site is just within the northwestern city limits and of easy access from the city proper.

The location is ideal for the treatment of children, in that it affords all the advantages of sunshine and country air.

A complete hospital unit, new in every respect, offers all modern facilities for the care of any orthopaedic condition in children.

The hospital is equipped with 82 beds—endowed, and city and state supported.

The Children's Orthopaedic Dispensary at the University Hospital is maintained in closest affiliation and cares for the cases discharged from the Kernan Hospital. The physiotherapy department is very well equipped with modern apparatus and trained personnel.

STAFF

Surgeon-in-Chief and Medical Director

ALLEN FISKE VOSHELL, A.B., M.D.

Attending Orthopaedic Surgeon

ALBERTUS COTTON, A.M., M.D.

Associate Orthopaedic Surgeons

MOSES GELLMAN, B.S., M.D.

HARRY L. ROGERS, M.D.

Resident Orthopaedic Surgeon

E. L. MORTIMER, JR., A.B., M.D.

Consulting Surgeons

J. M. T. FINNEY, A.B., M.D., D.S.M., F.R.C.S. (Eng., Ire.) Hon.

ARTHUR M. SHIPLEY, Sc.D., M.D.

Consulting Plastic Surgeon

JOHN STAIGE DAVIS, B.Sc., M.D.

Consulting Neurological Surgeon

CHARLES BAGLEY, JR., A.B., M.D.

Consulting Oculist

HARRY FRIEDENWALD, M.D.

Oculist

F. A. PACIENZA, M.D.

Consulting Aurist and Laryngologist

EDWARD A. LOOPER, M.D.

Aurist and Laryngologist

F. B. ANDERSON, M.D.

Consulting Dentist

HARRY B. MCCARTHY, D.D.S.

Dentist

M. E. COBERTH, D.D.S.

Consulting Physicians

THOMAS B. FUTCHER, A.B., M.D.

THOMAS R. BROWN, A.B., M.D.

LEWELLYS F. BARKER, A.B., M.D.

Pediatricist

BENJAMIN TAPPAN, A.B., M.D.

Dermatologists

HARRY M. ROBINSON, M.D.

LEON GINSBERG, M.D.

Consulting Pathologist

SYDNEY M. CONE, A.B., M.D.

Pathologist

HUGH R. SPENCER, M.D.

Consulting Neurologist

IRVING J. SPEAR, M.D.

Neurologist

R. V. SELIGER, M.D.

Anesthetists

J. A. TOMPKINS, M.D.

J. D. HOLLY, M.D.

Roentgenologist

ALBERTUS COTTON, A.M., M.D.

Superintendent

MISS C. GERTRUDE FORRESTER, R.N.

Dispensary and Social Service Nurse

MISS MABEL S. BROWN, R.N.

Physiotherapist and X-Ray Technician

MRS. GEORGIANA WISONG

Instructor in Grammar School

MISS LAURA HAMPSON

ST. VINCENT'S INFANT ASYLUM

The facilities of this institution, containing 150 infants and children, have been kindly extended to the University of Maryland by the Sisters of Charity. This large clinic enables this school to present to its students liberal opportunities for the study of diseases of infants and children.

STAFF

Obstetricians

THOS. K. GALVIN, M.D.

FRANK K. MORRIS, M.D.

Pediatricians

W. C. BACON, M.D.

C. L. JOSLIN, M.D.

CLEWELL HOWELL, M.D.

CHAS. R. GOLDSBOROUGH, M.D.

Surgeon

N. WINSLOW, M.D.

Dermatologist

J. A. BUCHNESS, M.D.

Oculists

C. A. CLAPP, M.D.

F. B. ANDERSON, M.D.

Orthopaedic Surgeon

H. L. WHEELER, M.D.

Physician

C. P. CLAUTICE, M.D.

LIBRARIES

The University Library, founded in 1813 by the purchase of the collection of Dr. John Crawford, now contains 18,721 volumes, a file of 150 current medical journals, and several thousand pamphlets and reprints. It is well stocked with recent literature, including books and periodicals of general interest. The home of the library is Davidge Hall, a comfortable and commodious building in close proximity to the classrooms and the laboratories of the Medical Department. The library is open daily during the year for use of members of the faculty, the students, and the profession generally.

The Library of the Medical and Chirurgical Faculty of Maryland, containing 45,000 volumes, is open to the students of the school. The leading medical publications of the world are received by the library, and complete sets of many journals are available. Other libraries of Baltimore are the Peabody (352,000 volumes) and the Enoch Pratt Free Library (702,553 volumes).

All these libraries are open to the students of the school without charge.

ORGANIZATION OF THE CURRICULUM

The following curriculum is the result of a thorough revision of teaching in this school in order to meet modern requirements. The multiplication of specialties in medicine and surgery necessitates a very crowded course and the introduction of electives will very soon be depended on to solve some of the difficulties .

The curriculum is organized under eleven departments.

1. Anatomy (including Histology and Embryology).
2. Physiology.
3. Bacteriology and Immunology.
4. Biological Chemistry.
5. Pharmacology and Materia Medica.
6. Pathology.
7. Medicine (including Medical Specialties).
8. Surgery (including Surgical Specialties).
9. Obstetrics.
10. Gynecology.
11. Ophthalmology and Otology.

The instruction is given in four years of graded work.

Several courses of study extend through two years or more, but in no case are the students of different years thrown together in the same course of teaching.

The first and second years are devoted largely to the study of the structures and functions of the normal body. Laboratory work occupies most of the student's time during these two years.

Some introductory instruction in Medicine and Surgery is given in the second year. The third and fourth years are almost entirely clinical.

A special feature of instruction in the school is the attempt to bring together teacher and student in close personal relationship. In many courses of instruction the classes are divided into small groups and a large number of instructors insures attention to the needs of each student.

In most courses the final examination as the sole test of proficiency has disappeared and the student's final grade is determined largely by partial examinations, recitations and assigned work carried on throughout the course.

DEPARTMENT OF ANATOMY, INCLUDING GROSS ANATOMY, HISTOLOGY AND EMBRYOLOGY

CARL L. DAVIS, M.D.....	Professor of Anatomy
EDUARD UHLENHUTH, Ph.D.....	Professor of Anatomy
THOMAS B. AYCOCK, S.B., M.D.....	Assistant Professor of Anatomy
JOHN F. LUTZ, M.D.....	Associate in Histology
MONTE EDWARDS, M.D.....	Associate in Anatomy
FRANK H. FIGGE, B.S.....	Instructor in Anatomy
JOSEPH POKORNY, M.D.....	Instructor in Histology
J. HULLA, M.D.....	Instructor in Histology
H. S. RUBINSTEIN, B.S., M.D.....	Instructor in Histology
FRANK K. MORRIS, A.B., M.D.....	Instructor in Anatomy
LUTHER E. LITTLE, M.D.....	Assistant in Anatomy

GROSS ANATOMY. *First Year.* Total number of hours 574. During the first semester, 5 lecture periods and 26 laboratory hours per week.

The entire course centers around the dissection of the human body. Each student is given opportunity to dissect an entire half (left or right) of the body. The dissection is supplemented by lecture and informal discussions. (One lecture a week for five weeks.)

Anatomy is taught as an independent science, emphasis being laid on the human species as contrasted with animal morphology. An attempt is made to familiarize the student with the elements of anthropometry, with systematic and regional anatomy, with the principles of topographical anatomy and with osteology.

The actual dissection is preceded by a general examination of the body surface and superficial organs. Opportunity is provided for taking representative measurements of the head, face, trunk and limbs, and of acquiring a knowledge of the use of anthropometric instruments. Throughout the dissection the student is encouraged to take measurements and weights of all the major organs, including the brain and the endocrines, and to obtain a knowledge of the proportions of each organ to the body as a whole, as well as to the variability of these proportions.

The dissection is undertaken in relation to topographical regions of the body, but systematic relations are continuously emphasized and, wherever possible, brought out by actual dissection.

Osteology is taught in conjunction with the dissection of the muscles and the study of the functional mechanism of the skeleto-muscular apparatus. Each student is provided with a set of bones to aid him in his homework. Fifty complete and perfect skeletons of the whole body and about as many of the limbs are available for reference and special advanced work.

Second, Third and Fourth Years. Opportunity is provided for advanced special dissections and for research work in every branch of anatomy. Dr. Uhlenhuth.

Histology and Embryology

First Year. This course has three subdivisions: First, general histology; second, organology; and third, the central nervous system, the last being distinguished as neuro-anatomy. The first semester is divided equally between the study of the fundamental tissues and that of organs. Neuro-anatomy is taught during the first two months of the second year. Throughout the entire course the embryology of the part being studied precedes the study of the fully developed tissue. Thus embryology becomes a correlated part of the whole subject of microscopic anatomy and not an independent subject.

A brief course in histological technic precedes the study of histological tissues, thus familiarizing the student with the principles involved in the preparation of material for microscopic study. For the remainder of the course, students are furnished slides of the required tissues, previously prepared in our own laboratory, thus insuring a uniform and satisfactory quality of material for study and permitting the time of the student to be expended in the study of material rather than in the technic of its preparation.

Neuro-anatomy embraces a study of the fundamental structure of the central nervous system as applied to its function. An abundance of material permits of individual dissection of the human brain. A series of appropriately stained sections of the human brain stem is furnished each student for the microscopic study of the internal structure of the nervous system. In addition, each student is required to construct a model of the principal tracts, comprising the central nervous system. Dr. Davis, Dr. Lutz, Dr. Rubinstein.

Total assigned hours, Microscopic Anatomy 245.

Graduate Courses

Anat. 101 s. (Minor). Human Gross Anatomy (10)—Total number of hours 574. Five lecture periods and 26 laboratory hours per week during the first semester.

A complete dissection of the human body (exclusive of the central nervous system). Dr. E. Uhlenhuth and Dr. Thomas B. Aycock.

Anat. 102 f. (Minor). Mammalian Histology (6)—Two lectures, 8 laboratory hours per week.

A general survey of the histological structure of the organs of mammals and man. Opportunity is offered for examining and studying a complete collection of microscopical sections. Dr. Davis and Dr. Lutz.

Anat. 103 s. (Minor). Human Neurology (4)—Three lectures, 6 laboratory hours for the first two months of the second year.

This course provides a general survey of the structure of the human central nervous system, being mainly directed toward the fiber tracts and nuclei contained therein. It includes a brief study of the special senses. The laboratory work is based on a dissection of the human brain, together with the study of prepared microscopic sections of the brain stem. *Anat. 102 f.*, or its equivalent, required to enter this course. Dr. Davis, Dr. Rubinstein.

Anat. 202 f. and s. (Major). For work leading to a Ph. D. in Anatomy. A study of neurological problems based on *103 s.* Only students who have had the preceding course in neurology are eligible for this work. Dr. Davis.

Anat. 204 f. and s. (Major). Advanced Endocrinology. (Credit and time dependent upon the student's qualifications.)

A study of the morphological equivalent of function. By means of proper experimentation the morphological responses of the endocrines to extrinsic and intrinsic factors are examined. This course will lead the student toward work for the Ph. D. in Anatomy. Dr. Uhlenhuth.

DEPARTMENT OF PHYSIOLOGY

FERD. A. RIES, M.D.,

Associate Professor of Physiology and Acting Head of the Department

O. G. HARNE, A.B. Assistant Professor of Physiology

ELIZABETH E. PAINTER, A.B. Assistant in Physiology

Second Year. Lectures, laboratory, and conferences are given in the physiology of muscle-nerve, central nervous system and special senses, followed by work on blood, circulation, respiration, internal secretions, metabolism and nutrition.

Lectures and conferences.....	96 hours
Laboratory	144 hours
Total.....	240 hours

For a description of the graduate courses offered, consult the catalog of the Graduate School.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

FRANK W. HACHTEL, M.D. Professor of Bacteriology

J. A. F. PFEIFFER, M.D. Instructor in Bacteriology

HENRY F. BUETTNER, M.D. Instructor in Bacteriology

H. EDMUND LEVIN, M.D. Assistant in Bacteriology

H. M. BUBERT, M.D. Assistant in Bacteriology

Instruction in bacteriology is given in the laboratory to the students of the second year during the first semester. This includes the various methods of preparation and sterilization of culture media, the study of pathogenic bacteria, and the bacteriological examination of water and milk. The bacteriological diagnosis of the communicable diseases is also included in this course. Animal inoculations are made in connection with the bacteria studied. The most important protozoa are also studied in the laboratory. The principles of general bacteriology are taught by quiz, conference and lecture.

The principles of immunology are presented by means of quizzes, conferences and lectures to the second-year class

throughout the second semester, and practical experiments are carried out by the class in laboratory sessions.

	BACTERIOLOGY	IMMUNOLOGY
Lectures and recitations.....	16 hours	16 hours
Laboratory	128 hours	96 hours
Total.....	144 hours	112 hours

DEPARTMENT OF BIOLOGICAL CHEMISTRY

H. BOYD WYLIE, M.D.....	Professor of Biological Chemistry
FRANK N. OGDEN, M.D.....	Associate in Biological Chemistry
EMIL G. SCHMIDT, Ph.D.....	Associate in Biological Chemistry
RUTH C. VANDEN BOSCHE, B.S.....	Assistant in Biological Chemistry
MAURICE J. SCHMULOVITZ, A.B.....	Weaver Fellow in Biological Chemistry

This course is designed to present the fundamental concepts of Biological Chemistry. The principal constituents and the phenomena of living matter are discussed in the lectures and conferences and studied in the laboratory. Training is afforded in routine biochemical methods of investigation.

Lectures and Conferences.....	96 hours
Laboratory	96 hours
Total.....	192 hours

DEPARTMENT OF PHARMACOLOGY

JOHN C. KRANTZ, JR., Ph.D.....	Professor of Pharmacology
RUTH MUSSER, B.A., M.S.....	Instructor in Pharmacology
WILLIAM ELLSWORTH EVANS, M.S.....	Instructor in Pharmacology
WILLIAM GLENN HARNE.....	Demonstrator in Pharmacology
C. JELLEFF CARR, B.S.....	Isaac E. Emerson Fellow in Pharmacology

This course is designed to include those phases of pharmacology necessary for an intelligent use of drugs in the treatment of disease. The didactic instruction includes materia medica, pharmacy, prescription-writing, toxicology, posology, pharmacodynamics, and experimental therapeutics. The laboratory exercises parallel the course of lectures and recitations.

Lectures and Recitations.....	96 hours
Laboratory	96 hours
Total.....	192 hours

Graduate Courses

Students pursuing graduate instruction in the biological sciences may select graduate courses in pharmacology. The foregoing course in systematic pharmacology designed for medical students is a prerequisite for these courses.

A general description of the specific courses offered are set forth in the bulletin of the Graduate School.

Opportunity will be provided for graduate students to engage in research in pharmacology and certain cognate sciences leading to graduate degrees.

DEPARTMENT OF PATHOLOGY

HUGH R. SPENCER, M.D.....	Professor of Pathology
STANDISH MCCLEARY, M.D.....	Professor of Pathology
SYDNEY M. CONE, A.B., M.D.....	Associate Professor of Pathology
ROBERT B. WRIGHT, M.D.....	Assistant Professor of Pathology
C. GARDNER WARNER, M.D.....	Associate in Pathology
ALBERT E. GOLDSTEIN, M.D.....	Associate in Pathology
WALTER C. MERKEL, M.D.....	Associate in Pathology
M. ALEXANDER NOVEY, M.D.....	Instructor in Pathology
WM. S. LOVE, JR., M.D.....	Instructor in Pathology
LEON FREEDOM, M.D.....	Instructor in Pathology
M. HAROLD GOODMAN, M.D.....	Instructor in Pathology
BENJAMIN ABESHOU, M.D.....	Instructor in Pathology
CHRISTOPHER C. SHAW, M.D.....	Instructor in Pathology
CHAS. J. FARINACCI, M.D.....	Instructor in Pathology
W. R. JOHNSON, M.D.....	Instructor in Pathology
FRANK J. GERAGHTY, M.D.....	Instructor in Pathology
JAMES G. ARNOLD, M.D.....	Assistant in Pathology
ROBERT W. JOHNSON, M.D.....	Assistant in Pathology
SAMUEL A. VEST, M.D.....	Assistant in Pathology

Courses of instruction in pathology are given during the second and third years. These courses are based on previous study of normal structure and function and aim to outline the natural history of disease. Instruction is made as practical as possible so that the student may become familiar with the appearance of tissues in disease and may be able to correlate anatomical lesions with clinical symptoms and signs.

1. GENERAL PATHOLOGY. (*Second Year.*) This course includes the study and demonstration of disturbances of the body fluids, disturbances of structure, nutrition and metabolism of

cells, disturbances of fat, carbohydrate and protein metabolism, disturbances in pigment metabolism, inflammation and tumors.

2. APPLIED PATHOLOGY. INCLUDING GROSS MORBID ANATOMY AND MORBID PHYSIOLOGY. (*Third Year*.) In this course the special relation of lesions to clinical symptoms and signs is emphasized.

In the laboratory the class is divided into groups for the study of classified autopsy material.

3. AUTOPSIES. (*Third Year*). Small groups of students attend autopsies at the morgues of the University Hospital and Baltimore City Hospital. They are required to assist at autopsies and to prepare protocols.

4. CLINICAL PATHOLOGICAL CONFERENCE. (*Fourth Year*). In collaboration with the Department of Medicine. Material from autopsies is studied with reference to the correlation of the clinical aspects with the pathological findings.

5. ADVANCED WORK IN PATHOLOGY. Properly qualified students will be permitted to carry out advanced or research work along the lines of experimental pathology.

SUMMARY

Second Year	
Lectures	60 hours
Laboratory	150 hours
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Total.....	210 hours
Third Year	
Lectures	60 hours
Laboratory	120 hours
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Total.....	180 hours
Fourth Year	
Clinical Pathological Conference.....	30 hours

DEPARTMENT OF MEDICINE

MAURICE C. PINCOFFS, B.S., M.D.....	Professor of Medicine
STANDISH MCCLEARY, M.D.....	Professor of Clinical Medicine
JOS. E. GICHNER, M.D., Prof. of Clinical Medicine and Physical Therapeutics	
G. CARROLL LOCKARD, M. D.....	Professor of Clinical Medicine
HARVEY G. BECK, Sc.D., M.D.....	Professor of Clinical Medicine
HARRY M. STEIN, M.D.....	Professor of Clinical Medicine
PAUL W. CLOUGH, B.S., M.D.....	Associate Professor of Medicine
C. C. W. JUDD, A.B., M.D.....	Associate Professor of Medicine
SYDNEY R. MILLER, A.B., M.D.....	Associate Professor of Medicine
WALTER A. BAETJER, A.B., M.D.....	Associate Professor of Medicine
WILLIAM H. SMITH, M.D.....	Associate Professor of Clinical Medicine
H. J. MALDEIS, M.D.....	Associate Professor of Medical Jurisprudence
CHARLES C. HABLSTON, M.D.....	Associate Professor of Medicine
S. LLOYD JOHNSON, A.B., L.L.B., M.D.....	Assistant Professor of Medicine
JOHN G. HUCK, M.D.....	Assistant Professor of Medicine
GEORGE MCLEAN, M.D.....	Assistant Professor of Medicine
L. A. M. KRAUSE, M.D.....	Assistant Professor of Medicine
H. R. PETERS, M.D.....	Assistant Professor of Medicine
H. M. BUBERT, M.D.....	Associate in Medicine
W. S. LOVE, JR., A.B., M.D.....	Associate in Medicine
J. S. EASTLAND, M.D.....	Associate in Medicine
THOMAS C. WOLFF, M.D.....	Associate in Medicine
T. NELSON CAREY, M.D.....	Associate in Medicine
M. G. GICHNER, M.D.....	Instructor in Medicine
WM. A. STRAUSS, M.D.....	Instructor in Medicine
HENRY SHEPPARD, M.D.....	Instructor in Medicine
WETHERBEE FORT, M.D.....	Instructor in Medicine
HENRY C. SMITH, M.D.....	Instructor in Medicine
FRANK J. GERAGHTY, M.D.....	Instructor in Medicine
L. P. GUNDRY, M.D.....	Instructor in Medicine
SAMUEL T. HELMS, M.D.....	Instructor in Medicine
NATHANIEL BECK, M.D.....	Assistant in Medicine
CARL BENSON, M.D.....	Assistant in Medicine
A. SCAGNETTI, M.D.....	Assistant in Medicine
BERNARD J. COHEN, M.D.....	Assistant in Medicine
W. H. TRIPLETT, M.D.....	Assistant in Medicine
DAVID TENNER, M.D.....	Assistant in Medicine
M. PAUL BYERLY, M.D.....	Assistant in Medicine
EARL L. CHAMBERS, M.D.....	Assistant in Medicine
H. EDMUND LEVIN, M.D.....	Assistant in Medicine
J. HOWARD BURNS, M.D.....	Assistant in Medicine
LAWRENCE SERRA, M.D.....	Assistant in Medicine
J. G. FEMAN, M.D.....	Assistant in Medicine
MORRIS FINE, M.D.....	Assistant in Medicine

GENERAL OUTLINE

SECOND YEAR

Introduction to clinical medicine.

- (a) Introductory physical diagnosis.
(1 hour a week, first semester: 2 hours a week, second semester.)
- (b) Medical clinics.
(1 hour a week, second semester.)

THIRD YEAR

I. The methods of examination (13 hours a week).

- (a) History taking.
- (b) Physical diagnosis.
- (c) Clinical pathology.

These subjects are taught and practiced in the out-patient department and in the clinical laboratory.

II. The principles of medicine (7 hours a week).

- (a) Lectures, clinics and demonstrations in general medicine, neurology, pediatrics and preventive medicine.

III. The principles of therapeutics (1 hour a week).

Lectures and demonstrations in general therapeutics, physical therapeutics and materia medica.

FOURTH YEAR

The practice of medicine.

I. Clinical clerkship on the medical wards.

(26 hours a week for ten weeks.)

- (a) Responsibility, under supervision, for the history, physical examination, laboratory examinations and progress notes of assigned cases.
- (b) Ward classes in general medicine, the medical specialties, and therapeutics.

II. Clinics in general medicine and the medical specialties.

(6 hours a week.)

III. Dispensary work in the medical specialties.

IV. Clinical pathological conferences (1 hour a week.)

Medical Dispensary Work

The medical dispensaries of both the Mercy and the University Hospitals are utilized for teaching in the third year. Each student spends two periods a week of two hours each in dispensary

work. The work is done in groups of four to six students under an instructor. Systematic history-taking is especially stressed. Physical findings are demonstrated. The student becomes familiar with the commoner acute and chronic disease processes.

Physical Diagnosis

Second Year. Didactic lectures and practical demonstrations in topographical anatomy and normal physical signs.

Third Year. The class is divided into small groups, and each section receives instruction for four hours a week for the entire session in the medical dispensaries of the hospitals. The large clinical material of the dispensaries and hospitals is utilized to give each student the opportunity to familiarize himself with the common types of bodily structure, with the normal variations in physical signs and with the physical signs of the chief pulmonary, circulatory and abdominal diseases.

A course of lectures (1 hour a week) on physical diagnosis supplements the practical work in this subject.

Therapeutics

Third Year. General therapeutics and materia medica are taken up and an effort is made to familiarize the student with the practical treatment of disease. The special therapy of the chief diseases is then reviewed. One hour a week. Dr. Lockard.

Fourth Year. Special consideration is given to the practical application of therapeutic principles in bedside teaching and the chief therapeutic methods are demonstrated.

Students attend therapeutic ward rounds once a week throughout their medical trimester.

Tuberculosis

During the third year in connection with the instruction in physical diagnosis a practical course is given weekly to sections of the class at the Municipal Tuberculosis Hospital. Stress is laid upon the recognition of the physical signs of the disease, as well as upon its symptomatology and gross pathology.

Cardiology

During the fourth year an elective course in cardiology is offered at the Mercy Hospital. The course occupies one and one-half hours weekly. Physical diagnosis, electrocardiography and the therapeutic management of cardiac cases are stressed.

Syphilis

Third Year. During the third year the subject of syphilis is dealt with in the lecture course.

Fourth Year. An elective course in the therapeutic management of syphilis is offered in the dispensary.

CLINICAL PATHOLOGY

JOHN G. HUCK, M.D.....	Assistant Professor of Medicine
	Head of Department of Clinical Pathology
H. J. MALDEIS, M.D.....	Associate Professor of Medical Jurisprudence
WILLIAM A. STRAUSS, M.D.....	Instructor in Medicine
SAMUEL T. HELMS, M.D.....	Instructor in Medicine
E. M. REESE, M.S.....	Assistant in Medicine

During the third year the student is thoroughly drilled in the technic of the usual clinical laboratory work, so that he is able to perform all routine examinations which may be called for during his fourth year, in connection with the work in the wards and dispensary.

The practical work is supplemented by a series of didactic lectures and demonstrations in which the entire teaching staff of the department takes an active part. The microscopical and chemical study of blood, exudates and transudates, gastric juice, spinal fluid, feces and urine are successively taken up, and special attention directed to the clinical significance of the findings.

Clinical parasitology from the standpoint of the infecting agent and the carrier is given careful consideration.

The entire course is thoroughly practical. Each student has his own microscope and is provided with blood counters and hemoglobinometer for his exclusive use, and every two students are equipped with a special laboratory outfit for all routine purposes.

During the fourth year the student applies what he has learned during the preceding year in the laboratories of the various affiliated hospitals. He is also supplied with a laboratory outfit which is sufficiently complete to enable him to work independently of the general equipment. Special instructors are available during certain hours to give necessary assistance and advice.

Lectures	32 hours
Laboratory	96 hours
Total.....	128 hours

GASTRO-ENTEROLOGY

JULIUS FRIEDENWALD, A.M., M.D.....	Professor of Gastro-Enterology
T. FRED LEITZ, M.D.....	Clinical Professor of Gastro-Enterology
J. HARRY ULLRICH, M.D.....	Associate Professor of Gastro-Enterology
THEODORE H. MORRISON, M.D.....	Associate Professor of Gastro-Enterology
MAURICE FELDMAN, M.D.....	Assistant Professor of Gastro-Enterology
ZACHARIAH MORGAN, M.D.....	Associate in Gastro-Enterology
JOSEPH SINDLER, M.D.....	Associate in Gastro-Enterology
SAMUEL MORRISON, M.D.....	Instructor in Gastro-Enterology
M. S. KOPPELMAN, M.D.....	Instructor in Gastro-Enterology
Z. VANCE HOOPER, M.D.....	Assistant in Gastro-Enterology
C. VICTOR RICHARDS, M.D.....	Assistant in Gastro-Enterology
H. WILLIAM PRIMAKOFF, M.D.....	Assistant in Gastro-Enterology

Third Year. A series of 14 lectures is given covering the diseases of the digestive tract.

Fourth Year. Clinics and demonstrations to the class for one hour a week throughout the session. Dispensary instruction to small groups throughout the entire session. Practical instruction is given in the use of modern methods of study of the diseases of the gastro-intestinal tract.

PSYCHIATRY

R. M. CHAPMAN, M.D.....	Professor of Psychiatry
RALPH P. TRUITT, M.D.....	Assistant Professor of Psychiatry
LEWIS B. HILL, M.D.....	Associate in Psychiatry
HARRY GOLDSMITH, M.D.....	Instructor in Psychiatry

Third Year. In the third year the student attends fifteen clinical lectures and five clinics which are designed to be introductory to the more intensive work in psychiatry in the fourth year.

Fourth Year. The class is divided into sections for clinical conferences on selected groups of cases. Each student may work for a short period as assistant in the Mental Hygiene Clinic, and thus gain practical experience of the problems of history-taking, examination, and the care of psychiatric patients.

PEDIATRICS

EDGAR B. FRIEDENWALD, M.D.....	Professor of Clinical Pediatrics
C. LORING JOSLIN, M.D.....	Professor of Clinical Pediatrics
JOHN H. TRABAND, M.D.....	Assistant Professor of Pediatrics
CLARENCE E. MACKE, M.D.....	Assistant Professor of Pediatrics
ALBERT JAFFE, M.D.....	Assistant Professor of Pediatrics
WILLIAM J. TODD, M.D.....	Associate in Pediatrics
WILLIAM G. GEYER, M.D.....	Associate in Pediatrics
CLEWELL HOWELL, M.D.....	Associate in Pediatrics
SAMUEL S. GLICK, M.D.....	Associate in Pediatrics
FREDERICK B. DART, M.D.....	Associate in Pediatrics
A. H. FINKELSTEIN, M.D.....	Associate in Pediatrics
F. STRATNER OREM, M.D.....	Instructor in Pediatrics
FREDERICK SMITH, M.D.....	Instructor in Pediatrics
R. M. HENING, M.D.....	Instructor in Pediatrics
MARIE KOVNER, M.D.....	Instructor in Pediatrics
ELIZABETH SHERMAN, M.D.....	Instructor in Pediatrics
WILLIAM G. QUEEN, M.D.....	Instructor in Pediatrics
W. J. SCHMITZ, M.D.....	Assistant in Pediatrics
M. PAUL BYERLY, M.D.....	Assistant in Pediatrics
HARRY A. RUTLEDGE, M.D.....	Assistant in Pediatrics
S. KENDIG WALLACE, M.D.....	Assistant in Pediatrics
MORRIS FINE, M.D.....	Assistant in Pediatrics
SAMUEL T. HELMS, M.D.....	Assistant in Pediatrics

Third Year. Instruction during the third year consists of a weekly lecture. The more important diseases of infancy and childhood are reviewed. The principles of infant feeding are presented in brief form.

Fourth Year. Weekly clinical lectures are given at which patients are shown to demonstrate the chief features of the diseases discussed. The students attend a weekly ward round on the pediatric service throughout their medical trimester. A special course on physical diagnosis in children is given. Sections of the class work daily in the Babies' and Children's Clinic.

NEUROLOGY

IRVING J. SPEAR, M.D.....	Professor of Neurology
ANDREW C. GILLIS, A.M., M.D., LL.D.....	Professor of Neurology
G. M. SETTLE, A.B., M.D.,	
Associate Professor of Neurology and Clinical Medicine	
MILFORD LEVY, M.D.....	Assistant Professor of Neurology
LEON FREEDOM, M.D.....	Associate in Neurology
H. S. RUBINSTEIN, M.D.....	Assistant in Neurology
FREDERICK WOLF, M.D.....	Assistant in Neurology

Third Year. Lectures and recitations one hour each week to the entire class. Instruction in clinical neurology two hours a week at the City Hospital to small groups. By means of didactic lectures and clinical conferences, there are considered the commoner types of diseases of the nervous system, the methods of neurological examination, and the relationship of signs and symptoms to pathological conditions. The material at the University and Mercy Hospitals is available.

Fourth Year. Clinical conference one hour each week to the entire class. This subject is taught at the University and Mercy Hospitals. All patients presented at these clinics are carefully examined; complete written records are made by the students who demonstrate the patients before the class. The patients are usually assigned one or two weeks before they are presented, and each student in the class must prepare one or more cases during the year.

Ward Class Instruction. In small sections at the University and Mercy Hospitals. In these classes the students come in close personal contact with the patients in the wards under the supervision of the instructor.

Dispensary Instruction. Small sections are instructed in the dispensaries of the University and Mercy Hospitals four afternoons each week. In this way students are brought into contact with nervous diseases in their early and late manifestations.

HYGIENE AND PREVENTIVE MEDICINE

.....	Professor of Hygiene and Public Health
.....	Instructor in Hygiene and Public Health
M. G. TULL, M.D.	Instructor in Hygiene and Public Health

Third Year. Two lectures a week throughout the session. The lectures will encompass the fundamental subjects: air, water, soil, food, disposal of wastes, communicable diseases, state and federal public health laws, and industrial diseases. Small groups visit the Sydenham Hospital weekly and are given practical instruction in the diagnosis, treatment, and isolation of the contagious diseases.

Fourth Year. Demonstrations and discussion of Health Department work with emphasis on those phases which concern the practicing physician. The class is divided into small groups, each group making five visits to the Health Department of one and a half hours each.

MEDICAL JURISPRUDENCE

H. J. MALDEIS, M.D.	Associate Professor of Medical Jurisprudence Baltimore City Post Mortem Physician
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Third Year. One hour each week for six weeks.

This course embraces a summary of the following: Proceedings in criminal and civil prosecution; medical evidence and testimony; identity and its general relations; sexual abnormalities; personal identity; impotence and sterility; rape; criminal abortions; signs of death; wounds in their medico-legal relations, death, natural and homicidal; malpractice; insanity; and medico-legal autopsies.

DEPARTMENT OF SURGERY

ARTHUR M. SHIPLEY, Sc.D., M.D.....	Professor of Surgery
ALEXIUS MCGLANNAN, A.M., M.D., LL.D.....	Professor of Surgery
NATHAN WINSLOW, A.M., M.D.....	Professor of Clinical Surgery
PAGE EDMUNDS, M.D.....	Professor of Traumatic Surgery
WALTER D. WISE, M.D.....	Professor of Clinical Surgery
FRANK S. LYNN, M.D.....	Professor of Clinical Surgery
ELLIOTT H. HUTCHINS, A.M., M.D.....	Professor of Clinical Surgery
CHARLES REID EDWARDS, M.D.....	Professor of Clinical Surgery
CHARLES BAGLEY, JR., A.B., M.D.....	Professor of Neurological Surgery
F. L. JENNINGS, M.D.....	Professor of Clinical Surgery
THOMAS R. CHAMBERS, A.M., M.D.....	Associate Professor of Surgery
R. W. LOCHER, M.D.....	Associate Professor of Clinical Surgery
A. M. EVANS, M.D.....	Associate Professor of Surgery
EDWARD S. JOHNSON, M.D.....	Associate Professor of Surgery
D. J. PESSAGNO, M.D.....	Associate Professor of Surgery
E. H. HAYWARD, M.D.....	Associate in Surgery
C. A. REIFSCHNEIDER, M.D.....	Associate in Surgery
C. F. HORINE, M.D.....	Associate in Surgery
I. O. RIDGLEY, M.D.....	Associate in Surgery
H. F. BONGARDT, M.D.....	Associate in Surgery
THOMAS B. AYCOCK, B.S., M.D.....	Associate in Surgery
MONTE EDWARDS, M.D.....	Associate in Surgery
RICHARD G. COBLENTZ, M.D.....	Associate in Neurological Surgery
N. CLYDE MARVEL, M.D.....	Associate in Surgery
W. R. JOHNSON, M.D.....	Instructor in Surgery
E. M. HANRAHAN, A.B., M.D.....	Instructor in Surgery
S. DEMARCO, M.D.....	Instructor in Surgery
KARL J. STEINMUELLER, A.B., M.D.....	Instructor in Surgery
W. W. WALKER, M.D.....	Instructor in Surgery
J. J. LEYKO, M.D.....	Instructor in Surgery
DWIGHT MOHR, M.D.....	Assistant in Surgery
WILLIAM R. GERAGHTY, B.S., M.D.....	Assistant in Surgery
H. B. MCELWAIN, M.D.....	Assistant in Surgery
J. G. ONNEN, M.D.....	Assistant in Surgery
A. V. BUCHNESS, M.D.....	Assistant in Surgery
T. J. TOUHEY, M.D.....	Assistant in Surgery
CLYDE F. KARNS, M.D.....	Assistant in Surgery
PAUL SCHENKER, M.D.....	Assistant in Surgery
ROBERT W. JOHNSON, M.D.....	Assistant in Surgery
FRANK K. MORRIS, A.B., M.D.....	Assistant in Surgery
J. WILLIS GUYTON, M.D.....	Assistant in Surgery
LUTHER E. LITTLE, M.D.....	Assistant in Surgery
WM. N. McFAUL, JR., M.D.....	Assistant in Surgery
SAMUEL H. CULVER, M.D.....	Assistant in Surgery
SIMON H. BRAGER, M.D.....	Assistant in Surgery

The teaching is done in the anatomical laboratory, the dispensaries, wards, clinical laboratories and operating rooms of the University and Mercy Hospitals, and in the wards and operating rooms of the Baltimore City Hospitals.

Instruction is given by means of lectures, recitations, dispensary work, bedside instruction, ward classes, and clinics. The work begins in the second year, and continues throughout the third and fourth years.

Second Year

TOPOGRAPHIC AND SURGICAL ANATOMY. The course is designed to bridge the gap between anatomy in the abstract, and clinical anatomy as applied to the study and practice of medicine and surgery.

The teaching is done in the anatomical laboratory, and students are required to demonstrate all points, outlines, and regions on the cadaver. Underlying regions are dissected when necessary to bring out outlines and relations of structures.

DIDACTIC LECTURES. Two hours a week for one semester, augmented by demonstrations with specimens, charts, and cross sections. Dr. Monte Edwards.

LABORATORY. Five hours a week for 16 weeks. Dr. Monte Edwards assisted by Drs. Ward, Morris and Little.

PRINCIPLES OF SURGERY. This course includes history-taking, records of physical examinations and of operations and progress notes; the preparation of surgical dressing, suture materials and solutions. It includes inflammation, infections, ulcers, gangrene, fistulae and sinuses, hemorrhage, shock and tumors; the use of splints, bed frames, bone plates, bone grafts, etc., local anaesthesia and the preparation of patients for operation. Lectures and conferences, two hours per week for one semester, to the entire class. Dr. C. R. Edwards.

Third Year

GENERAL AND REGIONAL SURGERY. Principles of surgery and general surgery, three hours a week throughout the year to the entire class, lectures, recitations and clinics. Drs. Shipley and Wise.

The class is divided into groups and receives instruction in history-taking, gross pathology, and surgical diagnosis—at the

bedside and in the dead-house of the Baltimore City Hospitals. Drs. Shipley, Lynn, Reifschneider and Aycock.

OPERATIVE SURGERY. Instruction is given in operative surgery upon the cadaver and on dogs. The class is divided into sections, and each section is given practical and individual work under the supervision of the instructors. Dr. Lynn, assisted by Drs. Winslow, E. S. Johnson, Aycock, Demarco, Horine, Pessagno, Onnen, W. R. Johnson, Steinmueller, R. W. Johnson, McFaul, Culver and Brager.

FRACTURES AND DISLOCATIONS. This course consists of instruction in the various forms of fractures, dislocations and their treatment. There is a regular schedule of didactic lectures, which is supplemented by practical demonstrations in diagnosis and treatment. This practical work is given at the Mercy, University and Baltimore City Hospitals. Drs. Lynn and Jennings.

SURGICAL DISPENSARY. Under supervision, the student takes the history, makes the physical examinations, attempts the diagnosis, and, as far as possible, carries out the treatment of the ambulatory surgical patients in the University and in the Mercy Hospitals. Mercy Hospital—Drs. Dwight Mohr, Ridgely, Touhey, Bongardt and McElwain. University Hospital—Drs. Lynn, Winslow, Edwards and E. S. Johnson.

Fourth Year

CLINICS. A weekly clinic is given at the Mercy and at the University Hospitals to one-half the class throughout the year. As far as possible this is a diagnostic clinic. Mercy Hospital—Dr. McGlannan. University Hospital—Dr. Shipley.

SURGICAL PATHOLOGY. A weekly exercise of one hour at Mercy Hospital for one semester, at which specimens from the operating room and museum are studied in the gross and microscopically, in relation to the case history. Dr. McGlannan.

TRAUMATIC SURGERY. Operative and post-operative treatment of accident cases, with instructions as to the relationship between the state, the employee, the employer, and the physician's duty to each. One hour a week to sections of the class throughout the year. Dr. Edmunds.

CLINICAL CLERKSHIP. The personal study of assigned hospital patients, under supervision of the staffs of the University and Mercy Hospitals, history-taking, and physical examination of

patients, laboratory examinations, attendance at operations and observation of post-operative treatment.

WARD CLASSES. Ward class instruction in small groups will consist of ward rounds, surgical diagnosis, treatment and the after-care of operative cases. Mercy Hospital—Drs. McGlannan, Wise, Elliot Hutchins, Evans and Jennings. University Hospital—Drs. Shipley, Edmunds, Lynn and Edwards.

ANAESTHESIA

S. GRIFFITH DAVIS, A.B., M.D.....	Professor of Anaesthesia
GEORGE H. YEAGER, B.S., M.D.....	Instructor in Anaesthesia
E. HOLLISTER DAVIS, A.B., M.D.....	Assistant in Anaesthesia
MARY J. O'BRIEN, R.N.....	Anaesthetist

Third Year

Lectures on the general physiology of anaesthesia, with consideration of special physiology of each anaesthetic agent. Methods of induction and administration of anaesthesia. Factors influencing the selection of the anaesthetic and types of anaesthetic agents. Preparation and care of the anaesthetized patient.

The lectures are correlated with practical demonstrations during operative clinics at the City Hospitals.

Fourth Year

During operative clinics in both surgery and gynecology each student will be given practical instruction in the administration of anaesthetics and will be required to record such changes as take place in blood pressure, pulse and respiration.

DERMATOLOGY

MELVIN ROSENTHAL, M.D.....	Professor of Dermatology
HARRY M. ROBINSON, M.D.....	Professor of Clinical Dermatology
JOHN R. ABERCROMBIE, A.B., M.D.....	Associate in Dermatology
FRANCIS ELLIS, A.B., M.D.....	Instructor in Dermatology
A. C. MONNINGER, M.D.....	Instructor in Dermatology
M. HAROLD GOODMAN, A.B., M.D.....	Instructor in Dermatology

Clinical conferences one hour each week to the entire class. This course will consist of demonstrations of the common diseases of the skin, in addition to a number of lectures on the general principles of Dermatology.

Dispensary instruction, University Hospital daily, in the diagnosis and treatment of skin lesions, Drs. Robinson, Ellis, Goodman, Monninger. Mercy Hospital, Mondays, Wednesdays and Saturdays, Dr. Rosenthal.

ORTHOPAEDIC SURGERY

ALLEN FISKE VOSHELL, A.B., M.D.....	Professor of Orthopaedic Surgery
ALBERTUS COTTON, A.M., M.D.....	Professor of Orthopaedic Surgery
COMPTON RIELY, M.D.....	Clinical Professor of Orthopaedic Surgery
MOSES GELLMAN, B.S., M.D.....	Associate Professor of Orthopaedic Surgery
HARRY L. ROGERS, M.D.....	Associate Professor of Orthopaedic Surgery
I. H. MASERITZ, M.D.....	Assistant in Orthopaedic Surgery
J. G. BENESUNES, M.D.....	Assistant in Orthopaedic Surgery

In this course didactic, clinical, bedside and out-patient instruction is given. This instruction is provided in the University Hospital Amphitheatre, Mercy Hospital and Dispensary, Kernan Hospital and Industrial School for Crippled Children at "Radnor Park" and in the Dispensary of the University Hospital.

Lectures or clinics are held once a week at each of the hospitals named in town. In addition, a weekly bedside clinic is held for small sections of the class at "Radnor Park" and Mercy Hospital. Daily teaching in the Dispensary is stressed.

The course covers instruction in the special methods of examination, pathology, diagnosis and treatment in this specialty.

Brief outlines and demonstrations are also given of the apparatus employed in Physiotherapy, Muscle Training and Corrective Gymnastics.

ROENTGENOLOGY

HENRY J. WALTON, M.D.....	Professor of Roentgenology
ALBERTUS COTTON, A.M., M.D.....	Professor of Roentgenology
EUGENE L. FLIPPIN, M.D.....	Associate in Roentgenology

During the academic year small groups of the fourth year class are given weekly demonstrations in the diagnostic and therapeutic uses of the Roentgen rays. An effort is made to familiarize the student with the appearance of normal Roentgenograms, after which instruction is given in the interpretation of the more common pathological lesions seen on the Roentgen films and fluoroscopic screen. The history, physics and practical ap-

plication of the Roentgen rays are alluded to, but not stressed. Two conferences are held each week with the medical and pathological departments, which are also open to members of the fourth year class.

DISEASES OF THE NOSE AND THROAT

EDWARD R. LOOPER, M.D., D.Oph.,

Professor of Diseases of the Nose and Throat

WAITMAN F. ZINN, M.D.,

Clinical Professor of Diseases of the Nose and Throat

FRANKLIN B. ANDERSON, M.D.,

Associate in Diseases of the Nose and Throat

R. F. MCKENZIE, M.D. Associate in Diseases of the Nose and Throat

THOMAS O'ROURK, M.D. Instructor in Diseases of the Nose and Throat

BIRCKHEAD MCGOWAN, M.D. Assistant in Diseases of the Nose and Throat

Third Year. Instruction to entire class is given in the common diseases of the nose and throat, attention being especially directed to infections of the accessory sinuses, the importance of focal infections in the etiology of general diseases and modern methods of diagnosis. Lectures illustrated by lantern slides are given one hour weekly throughout the second semester by Dr. Looper.

Fourth Year. Dispensary instruction one and one-half hours daily, to small sections at the University and the Mercy Hospitals. The student is given opportunity to study, diagnose and treat patients under supervision. Ward classes and clinical demonstrations are given in periods of one and one-half hours weekly throughout the session in the University and the Mercy Hospitals.

The Looper Clinic, recently established in the University Hospital for bronchoscopy and esophagoscopy, affords unusual opportunities for students to study diseases of the larynx, bronchi and esophagus. The clinic is open to students daily from 2 to 4 P. M., under direction of Dr. Looper.

The Mercy Hospital Clinic for bronchoscopy and esophagoscopy is under the direction of Dr. Zinn. In these two clinics the etiology, symptomatology, diagnosis and treatment of foreign bodies in the air and food passages, as well as bronchoscopy, are taught to students, as an aid in the diagnosis and treatment of diseases of the lungs.

GENITO-URINARY SURGERY

W. H. TOULSON, A.B., M.Sc., M.D.....	Professor of Genito-Urinary Surgery
A. J. GILLIS, M.D.....	Clinical Professor of Genito-Urinary Surgery
AUSTIN H. WOOD, M.D.....	Associate in Genito-Urinary Surgery
L. J. MILLAN, M.D.....	Associate in Genito-Urinary Surgery
K. D. LEGGE, M.D.....	Associate in Genito-Urinary Surgery
L. K. FARGO, M.D.....	Instructor in Genito-Urinary Surgery
SAMUEL T. HELMS, M.D.....	Instructor in Genito-Urinary Surgery

Third Year. Eight hours to the entire class. This is a diadactic course in the principles of Genito-Urinary Surgery. Dr. Toulson.

Fourth Year. The course includes urethroscopy, cystoscopy, ureter catheterization, renal function tests, urography, urine cultures, etc. The teaching consists of clinics in the amphitheater, ward rounds, and attendance by members of the senior class upon out-patients in the dispensary. The dispensary classes are carried on both at the Mercy and the University Hospital dispensaries. Every variety of venereal disease is here encountered and this rich wealth of material is available for teaching purposes. In addition to this, a cystoscopic clinic is conducted in another part of the dispensary, where the students are given practical instruction in the modern diagnostic methods.

DISEASES OF THE RECTUM AND COLON

G. MILTON LINTHICUM, A.M., M.D.,	
	Professor of Diseases of Rectum and Colon
CHARLES F. BLAKE, A.M., M.D.,	
	Professor of Diseases of Rectum and Colon
J. DAWSON REEDER, M.D.,	
	Clinical Professor of Diseases of Rectum and Colon
MONTE EDWARDS, M.D.....	Associate in Diseases of Rectum and Colon

Third Year. Six hours to the entire class. This course is for instruction in the diseases of the colon, sigmoid flexure, rectum and anus, and will cover the essential features of the anatomy and physiology of the large intestine as well as the various diseases to which it is subject. Dr. Linthicum and Dr. Edwards.

Fourth Year. Ward and dispensary instruction is given in the University and Mercy Hospitals, where different phases of the various diseases are taught by direct observation and examination. The use of the proctoscope and sigmoidoscope in the

examination of the rectum and sigmoid is made familiar to each student. Mercy Hospital—Dr. Blake. University Hospital—Drs. Linthicum, Reeder and Monte Edwards.

OTOLOGY

J. W. DOWNEY, M.D.	Professor of Otolaryngology
FRANKLIN B. ANDERSON, M.D.	Associate in Otolaryngology
F. A. HOLDEN, M.D.	Instructor in Otolaryngology
BENJAMIN S. RICH, M.D.	Assistant in Otolaryngology
BIRCKHEAD MCGOWAN, M.D.	Assistant in Otolaryngology

The course in otology is planned to give a practical knowledge of the anatomy and physiology of the ear, and its proximity and relationship to the brain and other vital structures. The inflammatory diseases, their etiology, diagnosis, treatment and complications are particularly stressed, with emphasis upon their relationship to the diseases of children, head-surgery and neurology.

Third Year. The entire class is given instruction by means of talks, anatomical specimens and lantern slides.

Fourth Year. Small sections of the class receive instruction and make personal examinations of patients under the direction of an instructor. The student is urged to make a routine examination of the ear in his ward work in general medicine and surgery.

NEUROLOGICAL SURGERY

CHARLES BAGLEY, JR., A.B., M.D.	Professor of Neurological Surgery
RICHARD G. COBLENTZ, M.D.	Associate in Neurological Surgery
WILLIAM R. GERAGHTY, B.S., M.D.	Instructor in Neurological Surgery
JAMES G. ARNOLD, JR., A.B., M.D.,	

Hitchcock Fellow in Neurological Surgery

Third Year. The course covers instruction in diagnosis and treatment of surgical conditions of the brain, spinal cord, and the peripheral nerves. Eight lectures are given to the entire class and conferences are held from time to time. Dr. Bagley.

Fourth Year. Weekly ward rounds and conferences are given at the University Hospital. Drs. Bagley and Coblentz.

ONCOLOGY

J. MASON HUNDLEY, JR., M.A., M.D.....	Associate in Gynecology
GRANT E. WARD, A.B., M.D.....	Instructor in Surgery

Every facility for the diagnosis and treatment of neoplastic diseases is available; this includes electro-surgery, radium therapy and deep X-ray therapy.

An out-patient clinic is held twice weekly which affords an opportunity for instruction to a limited number of students. The gynecological problems are under the supervision of Dr. Hundley, and the general surgical conditions are under the direction of Dr. Ward.

Instruction, other than dispensary teaching, is given to small groups of students, for one hour a week, in the history, physics and practical application of radium. Dr. Ward.

DEPARTMENT OF OBSTETRICS

J. M. H. ROWLAND, M.D.....	Professor of Obstetrics
L. H. DOUGLASS, M.D.....	Professor of Clinical Obstetrics
J. McFARLAND BERGLAND, M.D.....	Associate Professor of Obstetrics
EMIL NOVAK, M.D.....	Associate Professor of Obstetrics
E. P. SMITH, M.D.....	Associate in Obstetrics
J. G. M. REESE, M.D.....	Associate in Obstetrics
M. A. NOVEY, A.B., M.D.....	Associate in Obstetrics
JOHN G. MURRAY, JR., A.B., M.D.....	Associate in Obstetrics
ISADORE A. SIEGEL, A.B., M.D.....	Associate in Obstetrics
E. P. H. HARRISON, A.B., M.D.....	Associate in Obstetrics
MARGARET B. BALLARD, M.D.....	Assistant in Obstetrics
E. S. EDLAVITCH, M.D.....	Assistant in Obstetrics
KENNETH B. BOYD, M.D.....	Assistant in Obstetrics
GEORGE L. WISSIG, M.D.....	Assistant in Obstetrics

Third Year. Three lectures and recitations each week by Drs. Bergland, Novak, Murray, Douglass and Rowland to entire class.

MANIKIN WORK. Drs. Smith and Edlavitch to sections of class at Mercy Hospital, and Drs. Douglass, Siegel, Harrison and Rowland at University Hospital.

Fourth Year. Clinical Conference. One hour each week. Drs. Rowland, Douglass and Murray.

WARD CLASSES. Six hours per week for five weeks to sections of class at University Hospital. Drs. Douglass, Reese and Novey.

Each member of the Senior class is required to deliver ten women in their homes under supervision of the teaching and resident staff.

DEPARTMENT OF GYNECOLOGY

WILLIAM S. GARDNER, M.D.	Professor of Gynecology
HUGH BRENT, M.D.	Professor of Clinical Gynecology
ABRAM S. SAMUELS, M.D.	Associate Professor of Gynecology
GEORGE A. STRAUSS, JR., M.D.	Associate in Gynecology
R. G. WILLSE, M.D.	Associate in Gynecology
THOMAS K. GALVIN, M.D.	Associate in Gynecology
J. MASON HUNDLEY, JR., M.A., M.D.	Associate in Gynecology
LEO BRADY, M.D.	Associate in Gynecology
E. S. EDLAVITCH, M.D.	Assistant in Gynecology

Third Year. DIADACTIC WORK. A course of thirty lectures and recitations.

Fourth Year. CLINICAL WORK. Six hours weekly for one trimester. In this course the student writes the clinical history of each patient in the ward and makes a general physical examination, including the blood and urine, before the patient is brought before the class. A pelvic examination is made by six students, and any operation required is then done before a section of the class small enough to see clearly what is being done and how it is done. On a subsequent day the whole group examines, microscopically, sections prepared from material removed from patients that have been before them.

DEPARTMENT OF OPHTHALMOLOGY

CLYDE A. CLAPP, M.D.	Professor of Ophthalmology
M. RANDOLPH KAHN, M.D.	Clinical Professor of Ophthalmology
H. K. FLECK, M.D.	Associate Professor of Ophthalmology
R. D. WEST, M.D.	Associate in Ophthalmology
JONAS FRIEDENWALD, A.B., M.D.	Lecturer in Ophthalmic Pathology
JOSEPH I. KEMLER, M.D.	Associate in Ophthalmology
F. A. HOLDEN, M.D.	Instructor in Ophthalmology
HENRY F. GRAFF, A.B., M.D.	Instructor in Ophthalmology
FRANK A. PACIENZA, M.D.	Instructor in Refraction
JOHN G. RUNKLE, M.D.	Assistant in Ophthalmology
THOMAS O'ROURK, M.D.	Assistant in Ophthalmology

Third Year. Second semester. Dr. Kahn will give a course reviewing the anatomy and physiology of the eye and the methods used in making the various examinations. Errors of refraction and their effect upon the general system will be explained. Weekly section work, demonstrating the use of the ophthalmoscope, will be carried on during the entire session.

Fourth Year. Clinics and demonstrations in diseases of the eye, weekly, for one year. Dr. Clapp.

This course consists of lectures upon the diseases of the eye, with particular reference to their diagnosis and relation to general medicine. Special lectures will be given upon vascular changes in the eye and upon the pathology of the eye. Some operations will be demonstrated by motion pictures.

Weekly ward classes at the University and the Baltimore Eye, Ear and Throat and Mercy Hospitals during which the eye grounds in the various medical and surgical conditions are demonstrated. Drs. Fleck, West, Kemler and Graff.

Also daily demonstrations in the taking of histories and the diagnosis and treatment of the various conditions as seen in the dispensary.

Third Year—	
Lectures	20 hours
Laboratory	10 hours
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Total.....	30 hours
Fourth Year—	
Lectures and demonstrations.....	26 hours
Clinical work.....	20 hours
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Total.....	46 hours

HISTORY OF MEDICINE

JOHN RATHBONE OLIVER, M.D., Ph.D.

Professor of the History of Medicine

In this Department a series of weekly lectures is given each year in March, April and May. The course is planned so that the entire field of medical history may be covered in four years. In this way any medical student who has attended the lectures during his four years course at the medical school has been given at least an outline of the history of his profession. During the past academic year the lectures have been devoted to Primitive and Ancient Medicine, beginning with the medicine of primitive mankind and ending with the development of medicine among the Greek people. The lectures are illustrated with lantern slides and all the important books on the subjects presented are produced and passed around among the students. During session 1932-33 the department was especially fortunate in being able to have one lecture from Dr. Henry E. Sigerist, Professor of the History of Medicine at the Johns Hopkins University, and another lecture from Dr. Owsei Temkin, Associate in the History of Medicine at the same University. Dr. Sigerist delivered the first lecture in the course with a general introduction to medical history, while Dr. Temkin presented the results of his researches in connection with the great Medical School of Alexandria.

With the session of 1933-34 the lectures will begin with Greek Medicine and will carry on the development of medicine down to the end of the Middle Ages.

Thanks to the kindness of Dr. Sigerist, any students of our own medical school who are interested in medical history are invited to attend as visitors, the lectures that are to be given during 1933-34 at the Institute of the History of Medicine of the Johns Hopkins University. These lectures are all held in the rooms of the Institute on the third floor of the Welch Medical Library. Advance notices of them will be posted in due time on our own notice board. The members of the staff of the Institute will welcome any student who is interested in medical history and will be glad to advise him as to his reading or to suggest subjects for special study.

FIRST YEAR SCHEDULE

FIRST SEMESTER, SEPTEMBER 25, 1933, TO JANUARY 27, 1934

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00— 11.00		Laboratory	Laboratory	Laboratory	Laboratory	
11.00— 12.00	Biological Chemistry C. H.	Biological Chemistry Section A	Biological Chemistry Section B	Biological Chemistry Section A	Biological Chemistry Section B	
12.00 to 12.50	Lunch	Lunch	Lunch	Lunch	Lunch	
12.50 to 1.50	Biological Chemistry C. H.	Biological Chemistry C. H.	Biological Chemistry C. H.	Biological Chemistry C. H.	Biological Chemistry C. H.	
2.00 to 5.00	Laboratory Histology and Embryology	Laboratory Histology and Embryology		Laboratory Histology and Embryology	Laboratory Histology and Embryology	

SECOND SEMESTER, JANUARY 30 TO MAY 26, 1934

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 12.00	Laboratory *Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy
12.00 to 1.00	Lunch	Lunch	Lunch	Lunch	Lunch	
1.00 to 2.00	Anatomy Adm. & A. H.	Anatomy C. H. & A. H.	Anatomy C. H. & A. H.	Anatomy C. H. & Adm.	Anatomy C. H. & A. H.	
2.00 to 5.00	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	

* Anatomy includes both Gross and Neural Anatomy.

LOCATIONS OF LECTURE HALLS AND LABORATORIES:

Adm.—Lower Hall, Administration Building, N. E. Cor. Lombard and Greene Streets.
A. H.—Anatomical Hall—Upper Hall, N. E. Cor. Lombard and Greene Streets.
C. H.—Chemical Hall, Lower Hall, N. E. Cor. Lombard and Greene Streets.
Anatomy Laboratory—Third Floor, Gray Laboratory, Lombard and Greene Streets.
Biological Chemistry Laboratory—Third Floor, 31 S. Greene Street.
Histology and Embryology Laboratory—32-34 S. Paca Street, Sixth Floor.
Neural Anatomy Laboratory—32-34 S. Paca Street, Sixth Floor.

Mid-Year Examinations—January 22 to January 27, 1934.

Final Examinations—May 21 to May 26, 1934.

(This schedule is subject to revision for 1933-1934)

SECOND YEAR SCHEDULE

FIRST SEMESTER, SEPTEMBER 25, 1933, TO JANUARY 27, 1934

Hours	Monday	Tuesday	Wednesday	Thursday	Friday
9.00 to 10.00	Pharmacology Adm.	Pharmacology Adm.	Medicine Adm.	Laboratory Physiology	Laboratory Physiology
10.00 to 11.00	Physiology Adm.	Physiology Adm.	Physiology Adm.		
11.00 to 12.00	Pathology A. H.	Pathology A. H.	Bacteriology A. H.	Section A	Section B
12.00 to 12.30	Lunch	Lunch	Lunch	Lunch	(12-1) Lunch
12.30 to 2.30	Laboratory Bacteriology	Laboratory Bacteriology	Laboratory Bacteriology	Laboratory Bacteriology	(1-2) Surgical Anatomy Adm.
2.30 to 3.30					(2-3) Physiology Adm.
3.30 to 5.30	Laboratory Physiology Section A Pharmacology Section B	Laboratory Physiology Section B Pharmacology Section A	Laboratory Surgical Anatomy	Surgical Anatomy C. H. Laboratory Surgical Anatomy	

SECOND YEAR SCHEDULE

SECOND SEMESTER, JANUARY 30 TO MAY 26, 1934

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30 to 9.30	Pharmacology Adm.	Pharmacology Adm.	* Physiology Adm.	Laboratory	Laboratory	
9.30 to 10.30	Surgery A. H.	Surgery A. H.	Immunology Adm.	Physiology Section A	Physiology Section B	
10.30 to 11.30	Pathology A. H.	Pathology A. H.	Physiology Adm.	Pharmacology Section B	Pharmacology Section A	
11.30 to 12.00	Lunch	Lunch	Lunch	Lunch	Lunch	(11-12) Physiology Adm.
12.00 to 2.00	Laboratory Pathology	Laboratory Pathology	Laboratory Pathology	Laboratory Pathology	Laboratory Pathology	(12-1) Medical Clinic Amp.
2.00 to 3.00	Physiology Adm.			Laboratory	Laboratory	
3.00 to 4.00	Physical Diagnosis Univ. Hosp. Disp.	Laboratory Immunology	Laboratory Immunology	Physiology Section B Pharmacology Section A	Physiology Section A Pharmacology Section B	
4.00 to 5.00						

LOCATIONS OF LECTURE HALLS AND LABORATORIES:

Adm.—Lower Hall, Administration Building, N. E. Cor. Lombard and Greene Streets.
A. H.—Anatomical Hall—Upper Hall, N. E. Cor. Lombard and Greene Streets.
C. H.—Chemical Hall, Lower Hall, N. E. Cor. Lombard and Greene Streets.
Amp.—Amphitheatre, University Hospital, Lombard and Greene Streets.

Laboratories:

Bacteriology—Second Floor, 31 S. Greene Street.
Immunology—Second Floor, 31 S. Greene Street.
Pathology—Second Floor, 31 S. Greene Street.
Pharmacology—Second Floor, Gray Laboratory, Lombard and Greene Streets.
Physiology—First Floor, Gray Laboratory, Lombard and Greene Streets.
Surgical Anatomy—Third Floor, Gray Laboratory, Lombard and Greene Streets.
Univ. Hospital Disp.—Dispensary, University Hospital, Lombard and Greene Streets.

* Physiology Course Terminates March 30, 1934.

Mid-Year Examinations—January 22 to January 27, 1934.

Final Examinations—May 21 to May 26, 1934.

(This schedule is subject to revision for 1933-1934)

THIRD YEAR SCHEDULE

SEPTEMBER 25, 1933, TO MAY 26, 1934

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30 to 9.30	Therapeutics C. H.	Pathology C. H.	Medicine C. H.	Medicine C. H.	Pathology C. H.	Medicine C. H.
9.30 to 10.30	Obstetrics C. H.	Surgery C. H.	Obstetrics C. H.	Surgery C. H.	Medicine C. H.	Surgery C. H.
10.30 to 1.00	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch
1.00 to 2.00	Surgical Clinic Amp. **Nose-Throat C. H.	Medical Clinic Amp.	Neurology P. & S. 34	(12.45-1.45) Gynecology 29 S. Greene	Obstetrics A. H.	Transfer
2.15 to 3.15	Pathology Laboratory	Pathology Laboratory	(2.30-4.30) Section A Clinical Medicine Surgery Gross	(2-3) Clinical Pathology 29 S. Greene	2.15 to 5.15 Clinical Pathology Laboratory	(2-4) Section B Clinical Medicine Surgery Gross
3.15 to 4.15			Pathology at Baltimore City Hospitals	*(3-4) Eye and Ear 29 S. Greene		Pathology at Baltimore City Hospitals
4.15 to 5.15	Preventive Medicine C. H.	Pediatrics C. H.	(2.15-4.15) Section B Group Work Ophthalmos- copy B. E. H. Practical Obstetrics Univ. Hosp.	(4-5) Preventive Medicine Legal Medicine Mental Hygiene 29 S. Greene		

From 10.30 A. M. to 1.00 P. M. the class is divided into two sections, one section report-
ing at Calvert and Saratoga Streets, the other at Lombard and Greene Streets.

C. H.—Chemical Hall—N. E. Cor. Lombard and Greene Streets.

A. H.—Anatomical Hall—N. E. Cor. Lombard and Greene Streets.

Amp.—Amphitheatre—University Hospital, S. W. Cor. Lombard and Greene Streets.

P. & S.—N. W. Cor. Calvert and Saratoga Streets. Rooms indicated on Second Floor.

B. E. H.—Baltimore Eye, Ear and Throat Hospital, 1214 Eutaw Place.

At the beginning of the second semester Section "A" at Baltimore City Hospital on
Saturdays, 2-4 P. M., and University Hospital on Wednesdays, 2.15-4.15 P. M.; Section "B"
at Baltimore City Hospital on Wednesdays, 2.30-4.30 P. M.

Mid-Year Examinations—January 22 to January 27, 1934.

Final Examinations—May 14 to May 26, 1934.

* Ear—First semester.

* Eye—Second semester.

** Nose-Throat—Second semester.

(This schedule is subject to revision for 1933-1934)

FOURTH YEAR SCHEDULE

SEPTEMBER 25, 1933, TO MAY 26, 1934

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 11.00	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology
11.00 to 12.00	Orthopaedic Surgery Univ. Sec. Amp. P. & S. Sec. 51	Medical Clinic Univ. Sec. Amp. Surgical Pathology P. & S. Sec. 40	Clinical Pathological Conference Univ. Sec. C. H. P. & S. Sec. 34	Surgical Clinic Univ. Sec. Amp. P. & S. Sec. 51	Medical Clinic Univ. Sec. Amp. P. & S. Sec. 34	Pediatric Clinic Univ. Sec. Amp. P. & S. Sec. 34
12.00 to 2.00	Dispensary Lunch and Transfer	Dispensary and Lunch	Dispensary Lunch and Transfer	Dispensary and Lunch	Dispensary Lunch and Transfer	Dispensary
2.15 to 3.15	Dermatology Clinic (Full Class at Univ. Hosp.) Amp.	Neurology Clinic Univ. Sec. Amp. P. & S. Sec. 34	Eye and Ear Clinic (Full Class at Univ. Hosp.) Amp. & C. H.	Obstetrical Clinic (Full Class at Univ. Hosp.) Amp.	Gastro-Enterology Clinic (Full Class at Univ. Hosp.) Amp.	Genito-Urinary Clinic P. & S. Sec. 51
3.30 to 5.00	P. & S. Sec. Ward Classes Medicine Urology Eye and Ear	Ward Classes Therapeutics Proctology Radiotherapy	P. & S. Sec. Ward Classes Medicine Roentgenology Preventive Medicine	Ward Classes Medicine Nose & Throat Physical Therapeutics	Ward Classes Neurology Psychiatry U. H. Orthopaedic Surgery Kernan Hospital	
3.30 to 5.00	Univ. Sec. Ward Classes Medicine Roentgenology		Univ. Sec. Ward Classes Medicine Urology Eye and Ear	(5 to 6 P.M.) March, April and May History of Medicine C. H.		

The Senior Class is divided into two sections, which report, one at Lombard and Greene Streets, the other at Calvert and Saratoga Streets, for one semester each, then rotate.

Each section of the class is divided into three groups—Medical, Surgical, and Special. These groups will rotate on the following dates:

FIRST SEMESTER

1st period.....Sept. 25-Oct. 28
2nd period.....Oct. 30-Dec. 2
3rd period.....Dec. 4-Jan. 20

SECOND SEMESTER

1st period.....Jan. 31-Mch. 3
2nd period.....Mch. 5-Apr. 7
3rd period.....Apr. 9-May 12

C. H.—Chemical Hall—N. E. Cor. Lombard and Greene Streets.

Amp.—Amphitheatre—University Hospital.

P. & S., 34—Second Floor, Calvert and Saratoga Streets.

P. & S., 40, 51—Fourth Floor, Calvert and Saratoga Streets.

For sub-sections of P. & S. ward classes, 3.30 to 5.00 P. M., see supplementary schedule at Mercy Hospital. For sub-sections of U. H. ward classes, 3.30 to 5.00 P. M., see Medical School bulletin board.

Mid-Year Examinations—January 22 to January 27, 1934.

Final Examinations—May 14 to May 19, 1934.

(This schedule is subject to revision for 1933-1934)

REQUIREMENTS FOR MATRICULATION

Admission to the course in medicine is by a completed Medical Student Certificate issued by the Registrar of the University of Maryland. This certificate is obtained from the Registrar on the basis of satisfactory educational credentials, and is essential for admission to any class.

The minimum requirements for the issuance of the Medical Student Certificate are:

(a) The completion of a standard four-year secondary school curriculum (it is advisable that a student take besides four years of English, courses in Latin; chemistry; physics; mathematics, including trigonometry; biology; and either French or German), or the equivalent in entrance examinations, and at least:

(b) Two years or sixty semester hours of college credits (exclusive of military science and physical education), including chemistry, physics, biology, English, and a modern foreign language. (See details below.)

Women are admitted to the School of Medicine of this University.

DETAILS OF THE COLLEGE REQUIREMENT

a. The preliminary college course shall extend through two college sessions of at least thirty-two weeks each, exclusive of holidays.

b. In excellence of teaching and in content, the work of this preliminary college course shall be equal to the work done in the freshman and sophomore years in standard colleges and universities.

c. This preliminary college course shall include courses in chemistry, physics, biology, English, and a modern foreign language, each course to embrace at least the credit shown in the schedule following:

REQUIREMENTS FOR MATRICULATION

SCHEDULE OF SUBJECTS OF THE TWO-YEAR
PREMEDICAL COLLEGE COURSE*Sixty Semester Hours Required*

REQUIRED COURSES:	<i>Semester Hours</i>
Chemistry (a).....	12
Physics (b)	8
Biology (c).....	8
English Composition and Literature (d).....	6
Modern Foreign Language (e).....	6
Other Non-Science Subjects.....	6

COURSES STRONGLY URGED:

Additional English

Additional Foreign Language.

Comparative Vertebrate Anatomy, Embryology, Histological Technique.

Quantitative Analysis or other Advanced Chemistry.

Advanced Mathematics, including Algebra and Trigonometry.

Psychology, Logic, Social Science, Economics, History, Political Science.

A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be of not less than fifty minutes' duration net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

(a) CHEMISTRY. Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work; and four semester hours in organic chemistry, including two semester hours of laboratory work. In the interpretation of this rule, work in qualitative analysis may be counted as general inorganic chemistry.

(b) PHYSICS. Eight semester hours required, of which at least two must be laboratory work. This course presupposes a knowledge of plane trigonometry.

(c) BIOLOGY. Eight semester hours required, of which four must be laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(d) **ENGLISH COMPOSITION AND LITERATURE.** The usual introductory college course of six semester hours, or its equivalent, is required.

(e) **FOREIGN LANGUAGE.** Six semester hours minimum requirement. A reading knowledge of a modern foreign language is very strongly urged. French and German have the closest bearing upon modern medical literature.

COMBINED COURSE IN ARTS AND SCIENCES, AND MEDICINE

A combined seven years' curriculum is offered leading to the degrees of Bachelor of Arts or Bachelor of Science and Doctor of Medicine. The first three years are taken in residence in the College of Arts and Sciences at College Park, and the last four years in the School of Medicine in Baltimore. (See University catalogue for details of quantitative and qualitative premedical course requirements.)

Upon the successful completion of the first year in the School of Medicine, and upon the recommendation of the Dean, the degree of Bachelor of Arts or Bachelor of Science may be conferred by the College of Arts and Sciences.

Students are urged to consider carefully the advantages this combination course offers over the minimum requirements of two years. By completing three years the training may be gradually broadened by a wider latitude in the election of courses in the arts subjects.

POST-GRADUATE STUDENTS

Graduates in medicine desiring to take the work of the senior year without being candidates for the degree, and, therefore, without examination, may receive a certificate of attendance on completing the full course satisfactorily.

The requirements for graduates in medicine admitted to the fourth-year class as candidates for the degree of Doctor of Medicine are the same as those enforced against undergraduates admitted to advanced standing.

RULES

1. All students are required to take the spring examinations unless excused by the Dean. No student will be permitted to advance from a lower to a higher class with conditions.

2. Should a student be required to repeat any year in the course, he must pay regular fees.

3. A student failing in final examinations for graduation at the end of the fourth year will be required to repeat the entire

course of the fourth year and to take examination in such other branches as may be required should he again be permitted to enter the school as a candidate for graduation.

4. The general fitness of a candidate for graduation as well as the results of his examinations will be taken into consideration by the Faculty.

5. All students entering the School of Medicine of the University of Maryland are required to provide themselves with microscopes of a satisfactory type.

A standard microscope of either Bausch & Lomb, Leitz, Spencer, or Zeiss make, fitted with the following attachments, will fill the requirements:

Triple nose piece	10 x and 5 x Oculars
Wide aperture stage	16mm. and 4mm. Objectives
Quick Screw condenser (Abbe)	1.9mm. 125 N.A. Oil Immersion Lens

STUDENTS MUST BE PREPARED TO PURCHASE MICROSCOPES AT THE BEGINNING OF THE FIRST YEAR

All the above rules, as well as the fees stated below, relate to the year ending June 6th, 1934, only. The right is reserved to make changes in the curriculum, the requirements for graduation, the fees and in any of the regulations whenever the Faculty deems it expedient.

FEES

Matriculation fee (paid once).....	\$10.00
Tuition fee (each year) for residents of Maryland.....	350.00
Tuition fee (each year) for non-residents.....	500.00
Laboratory fee (each year).....	25.00
Special and re-examination fee.....	5.00
Graduation fee	15.00

No fees are returnable.

The above fees apply to all students who matriculate in the School of Medicine in any class for the session beginning September 25th, 1933.

All students, after proper certification, are required to register at the Office of the Registrar. (See calendar in front part of this bulletin for dates for the payments of fees, and the note regarding late registration fee.)

The matriculation fee is payable at the time the applicant is offered acceptance as a student.

The laboratory fee and one-half of the tuition fee for the year shall be paid at the time of the first semester registration, and one-half of the tuition fee shall be paid at the second semester registration date.

Failure to meet these conditions will automatically debar the student from attendance on classes and other privileges of the University.

When offering checks in payment of tuition and other fees, students are requested to have them drawn in the exact amount of such fees. Personal checks whose face value is in excess of the fees due will be accepted for collection.

DEFINITION OF RESIDENCE STATUS OF STUDENTS*

Students who are minors are considered to be resident students if, at the time of their registration, their parents* have been residents of this State for at least one year.

Adult students are considered to be resident students if, at the time of their registration, they have been residents of this State for at least one year; provided such residence has not been acquired while attending any school or college in Maryland.

The status of the residence of a student is determined at the time of his first registration in the University and may not thereafter be changed by him unless, in the case of a minor, his parents* move to and become legal residents of this State by maintaining such residence for at least one full calendar year. However, the right of the student (minor) to change from a non-resident to a resident status must be established by him prior to registration for a semester in any academic year.

* The term "parents" includes persons who, by reason of death or other unusual circumstances, have been legally constituted the guardians of or stand in *loco parentis* to such minor students.

STATE MEDICAL STUDENT QUALIFYING CERTIFICATES

Candidates for admission who live in or expect to practice medicine in Pennsylvania, New Jersey or New York, and who are accepted as students by the University of Maryland, must apply, immediately after having been accepted, to their respective state board of education for a medical student qualifying certificate (Pennsylvania and New Jersey), or an approval of application for a medical student qualifying certificate (New York).

These certificates are to be on file in the Office of the Registrar, University of Maryland, during the period of attendance in the School of Medicine.

MEDICAL CARE OF STUDENTS

The Medical Council has made provision for the systematic care of students in the Medical School, according to the following plan:

1. *Preliminary Examination*—All new students will be examined during the first week of the semester. Notice of the date, time, and place of the examination will be announced to the classes on the bulletin board. The passing of this physical examination is necessary before final acceptance of any student.

2. *Medical Attention*—Students in need of medical attention will be seen by the School Physician, Dr. T. N. Carey, in his office at the Medical School, between 4 and 5 P. M., daily, except Saturday and Sunday. In cases of necessity, students will be seen at their homes.

3. *Hospitalization*—If it becomes necessary for any student to enter the hospital during the school year, the Medical Council has arranged for the payment of part or all of his hospital expenses, depending on the length of his stay and special expenses incurred. This applies only to students admitted through the School Physician's Office.

4. Prospective students are advised to have any known physical defects corrected before entering school in order to prevent loss of time which later correction might incur. As minor visual defects are frequently unrecognized until detected by an ophthalmologist, it is especially urged that all new students have their eyes examined and any error of refraction corrected before beginning the course.

PRIZES AND SCHOLARSHIPS

FACULTY PRIZE

To stimulate study among the candidates for graduation, the Faculty offers a Gold Medal to the candidate who secures the highest average during the four years of his course. Certificates of Honor are awarded to the five candidates standing next highest.

DR. A. BRADLEY GAITHER MEMORIAL PRIZE

A prize of \$25.00 is given each year by Mrs. A. Bradley Gaither as a memorial to the late Dr. A. Bradley Gaither, to the student in the senior class doing the best work in Genito-Urinary Surgery.

SCHOLARSHIPS*

The Dr. Samuel Leon Frank Scholarship

(Value \$125.00)

This scholarship was established by Mrs. Bertha Rayner Frank as a memorial to the late Dr. Samuel Leon Frank, an alumnus of this University.

It is awarded by the Trustees of the Endowment Fund of the University each year upon nomination by the Medical Council "to a medical student of the University of Maryland, who in the judgment of said Council, is of good character and in need of pecuniary assistance to continue his medical course."

This scholarship is awarded to a second, third or fourth year student who has successfully completed one year's work in this school. No student may hold such scholarship for more than two years.

* Note: Scholarships, unless specifically renewed on consideration of application, are for one year only.

The Charles M. Hitchcock Scholarships

(Value \$125.00 each)

Two scholarships were established from a bequest to the School of Medicine by the late Charles M. Hitchcock, M.D., an alumnus of the University.

These scholarships are awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Medical Council, to students who have meritoriously completed the work of at least the first year of the course in medicine, and who present to the Council satisfactory evidence of a good moral character and of inability to continue the course without pecuniary assistance.

The Randolph Winslow Scholarship

(Value \$125.00)

This scholarship was established by Prof. Randolph Winslow, M.D., LL.D.

It is awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Medical Council, to a "needy student of the Senior, Junior, or Sophomore Class of the Medical School."

"He must have maintained an average grade of 85% in all his work up to the time of awarding the scholarship."

"He must be a person of good character and must satisfy the Medical Council that he is worthy of and in need of assistance."

The Dr. Leo Karlinsky Scholarship

(Value \$200.00)

This scholarship was established by Mrs. Ray Mintz Karlinsky as a memorial to her husband, the late Dr. Leo Karlinsky, an alumnus of this University.

The scholarship is awarded to a second-year student who at the end of the first year has passed the best examination in Anatomy, Histology, Embryology, and Biological Chemistry.

The University Scholarships

Two scholarships are awarded by the University: One to a student of the College of Arts and Sciences appointed by the President, to be held for only one year; the other, which entitles the holder to exemption from payment of the tuition fee of the year, is awarded annually by the Medical Council to a student of the senior class who presents to the Medical Council satisfactory evidence that he is of good moral character and is worthy of and in need of assistance to complete the course.

Frederica Gehrmann Scholarship

This scholarship was established by the bequest of the late Mrs. Frederica Gehrmann and entitles the holder to exemption from payment of tuition fees. The scholarship is awarded to a third-year student who at the end of the second year has passed the best practical examinations in Anatomy, Physiology, Biological Chemistry, Pharmacology, Pathology, Bacteriology, Immunology, and Serology.

The Clarence and Geneva Warfield Scholarships

(Value \$300.00 each)

There are five scholarships established by the Regents from the income of the fund bequeathed by the will of Dr. Clarence Warfield.

Terms and Conditions: These scholarships are available to students of any of the classes of the course in medicine. Preference is given to students from the counties of the State of Maryland which the Medical Council may from time to time determine to be most in need of medical practitioners.

Any student receiving one of these scholarships must agree, after graduation and a year's internship, to undertake the practice of medicine, for a term of two years, in the county to which the student is accredited, or in a county selected by the Council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Council, the money advanced by the Regents shall be refunded.

Israel and Cecelia E. Cohen Scholarship

(Value \$250.00)

This scholarship was established by Miss Eleanor S. Cohen in memory of her parents, Israel and Cecelia E. Cohen. Terms and conditions: This scholarship will be available to students of any one of the classes of the course in Medicine; preference is given to students of the counties in the State of Maryland which the Medical Council may from time to time determine to be most in need of medical practitioners. Any student receiving one of these scholarships must, after graduation and a year's internship, agree to undertake the practice of medicine for a term of two years in the county to which the student is accredited, or in a county selected by the Council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Council, the money advanced by the Regents shall be refunded.

ANNUAL HOSPITAL APPOINTMENTS

On February 1st of each session the following annual appointments are made from among the graduates of the school:

TO THE UNIVERSITY HOSPITAL

Two Resident Surgeons	Two Resident Obstetricians
Two Resident Physicians	Thirteen Junior Residents on a Rotating Service
One Resident Gynecologist	

A number of students are appointed each year, at the close of the session, as Clinical Assistants in the University Hospital for the summer months.

TO THE MERCY HOSPITAL

Chief Resident Physician	One Resident Gynecologist
One Assistant Resident Physician	One Resident Obstetrician
Chief Resident Surgeon	Eight Junior Residents on a Rotating Service
Five Assistant Resident Surgeons	

NOTICE TO STUDENTS

The personal expenses of the students are at least as low in Baltimore as in any large city in the United States. The following estimates of a student's personal expenses for the academic year of eight months have been prepared by students, and are based upon actual experience. *In addition to these the student must bear in mind the expenditure for a microscope.*

Items	Low	Average	Liberal
Books	\$50	\$75	\$100
College Incidentals	20	20	20
Board, eight months.....	200	250	275
Room rent.....	64	80	100
Clothing and laundry.....	50	80	150
All other expenses.....	25	50	75
	<hr/>	<hr/>	<hr/>
Total.....	\$409	\$556	\$720

Students will save time and expense upon their arrival in the city by going directly to the School of Medicine on the University grounds, N. E. Corner Lombard and Greene Streets. Here may be found a list of comfortable and convenient boarding houses suitable to their means and wishes.

For further information, apply to

J. M. H. ROWLAND, *M.D., Dean,*
Lombard and Greene Streets.

GRADUATES, UNIVERSITY OF MARYLAND SCHOOL OF
MEDICINE AND COLLEGE OF PHYSICIANS
AND SURGEONS, JUNE 4, 1932

Abrashkin, Mortimer Dick, B.S.,	Connecticut	Jacobson, Meyer William, A.B.,	Maryland
Ahroon, Carl Richard, A.B.,	Maryland	Kaplan, Abraham Nathan, M.S.,	New York
Ashman, Leon, B.S.,	Maryland	Karfgin, Arthur, B.S.,	Maryland
Bell, Charles Raymond, B.S.,	Pennsylvania	Katz, Abraham, B.S.,	New York
Bell, James Russell,	Pennsylvania	Katz, Leonard,	Maryland
Bercovitz, Nathan,	New York	Katzenstein, Lawrence, B.S.,	Maryland
Berger, Herbert, B.S.,	New York	Keiser, Sylvan,	New York
Blum, Samuel Daniel, B.S.,	New York	Klein, Henrietta Estelle, Ph.B.,	Maryland
Bogorad, Daniel Emil,	Maryland	Korostoff, Bernard, B.S.,	New York
Brown, William Edward,	California	Kress, Milton Bernard,	Maryland
Byer, Jacob, M.A.,	New York	Krieger, Alexander Allan,	Pennsylvania
Cannon, Martin,	Ohio	Lechner, Sidney Israel, M.A.,	New York
Chimacoff, Hyman,	New Jersey	Leffert, Jacob, B.S.,	New York
Clayman, David Stanford,	Maryland	Legum, Samuel, A.B.,	Maryland
Crecca, Anthony Daniel,	New Jersey	Lerner, George, M.A.,	New York
Currie, Dwight McIver, A.B.,	North Carolina	Lieberman, Samuel, M.S.,	New York
Davis, Carroll Kalman,	New York	Louft, Reuben Richard, A.B.,	Maryland
Demarco, Salvatore Joseph, A.B.,	Maryland	Markman, Harry David, B.S.,	New York
Diamond, Joseph George, B.S.,	New Jersey	McGovern, William Joseph, B.S.,	Pennsylvania
Dumler, John Charles, B.S.,	Maryland	McMillan, William Owen,	West Virginia
Eichert, Herbert,	Maryland	Mebane, William Carter,	North Carolina
Eisenbrandt, William Henry, A.B.,	Maryland	Mickley, John Hoke, B.S.,	Pennsylvania
Fein, Jack, B.S.,	New York	Miller, Myron Joseph, M.A.,	New York
Fishbein, Elliot, M.S.,	New Jersey	Moore, John Duer, B.S.,	Maryland
Flom, Charles,	Maryland	Nachlas, Arthur, A.B.,	Maryland
France, Andrew Menaris, B.S.,	Maryland	Newnam, Alpheus Carlton,	Maryland
Ganz, Samuel Evans, M.A.,	New York	Panebianco, Richard Robert, B.S.,	New York
Geller, Samuel, B.S.,	New Jersey	Pear, Henry Robert,	Maryland
Gershenson, David Abraham, A.B.,	Maryland	Philip, Arthur Jay, B.S.,	New York
Gittleman, Solomon Ellman, B.S.,	New York	Pink, Solomon Harris, B.S.,	New Jersey
Glass, Albert Julius,	Maryland	Prigal, Samuel Jeremiah, B.S.,	New York
Gluckman, Albert Gerson, B.S.,	Delaware	Proctor, Samuel Edward, A.B.,	Maryland
Gorenberg, Harold, A.B.,	New Jersey	Reckson, Morris Murray,	New York
Grosh, Joseph Walter, B.S.,	Pennsylvania	Roberts, Marion Butler, A.B.,	North Carolina
Hall, Joseph Edwin, B.S.,	West Virginia	Rohm, Jack Zeth,	Pennsylvania
Halperin, David, B.S.,	New Jersey		
Hammell, Frank Mull,	New Jersey		
Hantman, Irvin,	Maryland		
Harris, Jacob, A.B.,	New York		
Hecht, Manes Scheuer, A.B.,	Maryland		
Hendler, Hyman Bernard,	Maryland		
Hull, Harry Clay,	Maryland		

Rosenthal, Stephen Isaiah, A.B., Pennsylvania	Stein, Charles, A.B.....Maryland
Rubenstein, Robert, B.S., New Jersey	Stephenson, Frank Richard.....Maryland
Sanchez, Robert Luis, A.B.....Mexico	Taylor, Francis Nicholson, A.B., Virginia
Saunders, Thomas Sewell.....Maryland	Thompson, Harry Goff.....Illinois
Savage, John Edward, B.S., District of Columbia	Tomlinson, Thomas H., North Carolina
Schwartz, David Israel.....Maryland	Whicker, Max Evans.....North Carolina
Shack, Max Herman.....New Jersey	Wilson, Frank, B.S.....North Carolina
Shaw, John Jacob, A.B.....New Jersey	Wirts, Carl Alexander, B.S., Pennsylvania
Siegel, Sidney Leon, B.S., New Jersey	Zupnik, Howard Lester, B.S., Pennsylvania
Silverstein, George, A.B.....Connecticut	Zuravin, Meyer Harry, B.S., New Jersey
Simmons, John Frederick.....Maryland	
Snyder, Jerome.....Maryland	
Sollod, Aaron Charles.....Maryland	
Statman, Arthur James, B.S., New Jersey	

Graduated September 15, 1932

Louis Frank Klimes.....Maryland

Honors

University Prize Gold Medal.....Charles Raymond Bell, Jr.

Certificates of Honor

David Stanford Clayman	Samuel Legum
John Edward Savage	John Charles Dumler
Solomon Ellman Gittleman	

Prizes

The Dr. A. Bradley Gaither Memorial Prize of \$25.00 for the best work
in Genito-Urinary Surgery during the senior year.....John Hoke Mickley

The Dr. Leo Karlinsky Memorial Scholarship for the highest standing
in the Freshman Class.....Karl Frederick Mech

INTERNESHIIPS—CLASS OF 1932

Graduates of the Class of 1932 are serving internships as follows:

Abrashkin, Mortimer Dick	King's County Hospital, Brooklyn, New York
Ahroon, Carl Richard	University Hospital, Baltimore, Maryland
Ashman, Leon	West Baltimore General Hospital, Baltimore, Maryland
Bell, Charles Raymond	Mercy Hospital, Pittsburgh, Pennsylvania
Bell, James Russell	Mercy Hospital, Pittsburgh, Pennsylvania
Bercovitz, Nathan	Bronx Hospital, Bronx, New York
Berger, Herbert	Morrisania City Hospital, Bronx, New York
Blum, Samuel Daniel	Beth David Hospital, New York, New York
Bogorad, Daniel Emil	Sinai Hospital, Baltimore, Maryland
Brown, William Edward	University Hospital, Baltimore, Maryland
Byer, Jacob	Montefiore Hospital, New York, New York
Cannon, Martin	Baltimore City Hospitals, Baltimore, Maryland
Chimacoff, Hyman	Newark Beth Israel Hospital, Newark, New Jersey
Clayman, David Stanford	Sinai Hospital, Baltimore, Maryland
Crecca, Anthony Daniel	Newark City Hospital, Newark, New Jersey
Currie, Dwight McIver	University Hospital, Baltimore, Maryland
Davis, Carroll Kalman	Beth-El Hospital, Brooklyn, New York
Demarco, Salvatore Joseph	University Hospital, Baltimore, Maryland
Diamond, Joseph George	Muhlenberg Hospital, Plainfield, New Jersey
Dumler, John Charles	University Hospital, Baltimore, Maryland
Eichert, Herbert	Union Memorial Hospital, Baltimore, Maryland
Eisenbrandt, William Henry	Union Memorial Hospital, Baltimore, Maryland
Fein, Jack	Bronx Hospital, Bronx, New York
Fishbein, Elliot	Beth Israel Hospital, Newark, New Jersey
Flom, Charles	
France, Andrew Menaris	University Hospital, Baltimore, Maryland
Ganz, Samuel Evans	Metropolitan Hospital, Welfare Island, New York
Geller, Samuel	Jersey City Hospital, Jersey City, New Jersey
Gershenson, David Abraham	Baltimore City Hospitals, Baltimore, Maryland
Gittleman, Solomon Ellman,	
	Brownsville and East New York Hospital, New York, New York
Glass, Albert Julius	Gouverneur Hospital, New York, New York
Gluckman, Albert Gerson	Jewish Hospital, St. Louis, Missouri
Gorenberg, Harold	Jersey City Hospital, Jersey City, New Jersey
Grosh, Joseph Walter	Lancaster General Hospital, Lancaster, Pennsylvania
Hall, Joseph Edwin	Ohio Valley General Hospital, Wheeling, West Virginia
Halperin, David	Jersey City Medical Center, Jersey City, New Jersey
Hammell, Frank Mull	Mercer Hospital, Trenton, New Jersey
Hantman, Irvin	West Baltimore General Hospital, Baltimore, Maryland
Harris, Jacob	Beth-El Hospital, Brooklyn, New York
Hecht, Manes Scheuer	Union Memorial Hospital, Baltimore, Maryland
Hendler, Hyman Bernard	Baltimore City Hospitals, Baltimore, Maryland
Hull, Harry Clay	University Hospital, Baltimore, Maryland
Jacobson, Meyer William	Baltimore City Hospitals, Baltimore, Maryland

Kaplan, Abraham Nathan,

Brownsville and East New York Hospital, New York, New York
 Karfgin, Arthur Mercy Hospital, Baltimore, Maryland
 Katz, Abraham Morrisania Hospital, Bronx, New York
 Katz, Leonard South Baltimore General Hospital, Baltimore, Maryland
 Katzenstein, Lawrence Sinai Hospital, Baltimore, Maryland
 Keiser, Sylvan United Israel Zion Hospital, Brooklyn, New York
 Klein, Henrietta R. Gallinger Municipal Hospital, Washington, D. C.
 Korostoff, Bernard Mercy Hospital, Baltimore, Maryland
 Kress, Milton Bernard,

West Baltimore General Hospital, Baltimore, Maryland
 Krieger, Alexander Allan Passavant Hospital, Pittsburgh, Pennsylvania
 Lechner, Sidney Israel Jewish Memorial Hospital, New York, New York
 Leffert, Jacob Cumberland Hospital, Brooklyn, New York
 Legum, Samuel Sinai Hospital, Baltimore, Maryland
 Lerner, George,

Brownsville and East New York Hospital, New York, New York
 Lieberman, Samuel Queensboro Contagious Hospital, Queens, New York
 Louft, Reuben Richard University Hospital, Baltimore, Maryland
 Markman, Harry David Gouverneur Hospital, New York, New York
 McGovern, William Joseph St. Joseph's Hospital, Pittsburgh, Pennsylvania
 McMillan, William Owen University Hospital, Baltimore, Maryland
 Mebane, William Carter St. Luke's Hospital, Bethlehem, Pennsylvania
 Mickley, John Hoke St. Luke's Hospital, Bethlehem, Pennsylvania
 Miller, Myron Joseph Morrisania Hospital, Bronx, New York
 Moores, John Duer University Hospital, Baltimore, Maryland
 Nachlas, Arthur Sinai Hospital, Baltimore, Maryland
 Newnam, Alpheus Carlton Wheeling Hospital, Wheeling, West Virginia
 Panebianco, Richard Robert,

Metropolitan Hospital, Welfare Island, New York
 Pear, Henry Robert
 Philip, Arthur Jay United Israel Zion Hospital, Brooklyn, New York
 Pink, Solomon Harris Barnett Memorial Hospital, Paterson, New Jersey
 Prigal, Samuel Jeremiah Beth David Hospital, New York, New York
 Proctor, Samuel Edward Maryland General Hospital, Baltimore, Maryland
 Reckson, Morris Murray United Israel Zion Hospital, Brooklyn, New York
 Roberts, Marion Butler Baltimore City Hospitals, Baltimore, Maryland
 Rohm, Jack Zeth Western Pennsylvania Hospital, Pittsburgh, Pennsylvania
 Rosenthal, Stephen Isaiah Scranton State Hospital, Scranton, Pennsylvania
 Rubenstein, Robert Metropolitan Hospital, Welfare Island, New York
 Sanchez, Robert Luis Mercy Hospital, Baltimore, Maryland
 Saunders, Thomas Sewell University Hospital, Baltimore, Maryland
 Savage, John Edward University Hospital, Baltimore, Maryland
 Schwartz, David Israel Johns Hopkins Hospital, Baltimore, Maryland
 Shack, Max Herman St. Elizabeth Hospital, Elizabeth, New Jersey
 Shaw, John Jacob Newark City Hospital, Newark, New Jersey
 Siegel, Sidney Leon Jersey City Hospital, Jersey City, New Jersey

Silverstein, George.....	Hospital of St. Raphael, New Haven, Connecticut
Simmons, John Frederick	University Hospital, Baltimore, Maryland
Snyder, Jerome	
Sollod, Aaron Charles,	
	South Baltimore General Hospital, Baltimore, Maryland
Statman, Arthur James.....	Newark City Hospital, Newark, New Jersey
Stein, Charles.....	Mercy Hospital, Baltimore, Maryland
Stephenson, Frank Richard.....	Union Memorial Hospital, Baltimore, Maryland
Taylor, Francis Nicholson.....	Mercy Hospital, Baltimore, Maryland
Thompson, Harry Goff.....	Good Samaritan Hospital, Cincinnati, Ohio
Tomlinson, Thomas H.	Maryland General Hospital, Baltimore, Maryland
Whicker, Max Evans	Virginia Baptist Hospital, Lynchburg, Virginia
Wilson, Frank	University Hospital, Baltimore, Maryland
Wirts, Carl Alexander	
	St. John's General Hospital, Pittsburgh, Pennsylvania
Zupnik, Howard Lester	Mercy Hospital, Baltimore, Maryland
Zuravin, Meyer Harry.....	Curtis Bay Hospital, Curtis Bay, Maryland

**GRADUATES, UNIVERSITY OF MARYLAND SCHOOL OF
MEDICINE AND COLLEGE OF PHYSICIANS
AND SURGEONS, JUNE 3, 1933.**

Aaron, Harold Henry, B.S.....	New York	Kimmel, Charles, B.S.....	New Jersey
Baker, George Stansbury, M.A.,		Kochman, Leon Arthur.....	Maryland
	Maryland	Konigsberg, Wilfred Kane, A.B.,	
Barnhardt, Albert Earl, A.B.,			New York
	North Carolina	Lentz, George Ellard, B.S.,	
Beanstock, Sam, B.S.....	New York		Pennsylvania
Becker, Martin, M.S.....	New Jersey	Lifland, Bernard Daniel, B.S.,	
Bellin, David Elias, M.A.....	New York		New Jersey
Bernstein, Joseph Cecil.....	Maryland	Lowman, Milton Edward, A.B.,	
Blitzman, Louis, B.S.....	New York		Maryland
Bowman, Harry Daniel, B.S.,	Maryland	Malinoski, Wallace Henry.....	Maryland
Cohen, Marvin Meyer, B.S.,		Matheke, George Adolph, B.S.,	
	New Jersey		New Jersey
Comegys, Richard Williamson, A.B.,		Miller, Benjamin, B.S.....	New York
	Maryland	Miller, Meyer George, B.S.,	New York
Diehl, Harold Clayton, B.S.,	Maryland	Moore, James Irving, A.B.....	Maryland
Di Stasio, Frank, B.S.....	Connecticut	Novenstein, Sidney, A.B.....	Connecticut
Drucker, Victor, B.S.....	New York	Osserman, Kermit Edward, A.B.,	
Emanuel, Meyer, B.S.....	New York		New York
Espinosa, Manuel, B.S.....	Porto Rico	Peer, George Foster.....	West Virginia
Etkind, Meyer George, B.S.,		Pico, Jose Teodoro, B.S.....	Porto Rico
	Connecticut	Racusin, Nathan.....	Maryland
Fineman, Jerome.....	Maryland	Robinson, Daniel Robert, B.S.,	
Fox, Haskell Wright, B.S.,			New York
	North Carolina	Rosenberg, Arthur, B.S.....	New York
Franklin, Frank Anthony, B.S.,		Rosenfeld, David Herman.....	Maryland
	New Jersey	Rubin, Samuel S.....	Maryland
Garrison, Ralph Bernard, B.S.,		Rutland, Hedley Ethelbert, B.S.,	
	North Carolina		Pennsylvania
Goldman, Alexander Blodnick, B.S.,		Sager, Harold, B.S.....	New Jersey
	New York	Scarborough, Asa Mark,	
Goldman, Meyer Leo, A.B.....	New York		South Carolina
Gorrell, James Stanley, A.B.,	Maryland	Schiff, Hyman, A.B.....	Maryland
Griggs, William Lemuel, Jr., B.S.,		Schiff, Joseph, A.B.....	Maryland
	North Carolina	Schindler, Blane Markwood,	Maryland
Harris, Earle Harold.....	New York	Schneiman, Maurice Harris, A.B.,	
Hedgpeth, Louten Rhodes, B.S.,			Pennsylvania
	North Carolina	Schochet, George.....	Maryland
Hemminger, Earl Wentworth, B.S.,		Schwartz, Alec Robert, B.S.,	
	Pennsylvania		Pennsylvania
Highstein, Gustav.....	Maryland	Schwartz, Paul M.....	Maryland
Himelfarb, Albert Joseph, A.B.,		Sewell, Stephen, Ph.M.....	New Jersey
	Maryland	Shea, Cornelius Joseph.....	Connecticut
Hoover, William Alonzo, B.S.,		Shinn, George Clyde.....	North Carolina
	North Carolina	Smith, Ashby Wade.....	Virginia
Hurwitz, George Hillel, A.B.,		Stackhouse, Howard.....	New Jersey
	Connecticut	Stern, Maurice Lee, A.B.....	New York
Hyman, Joseph Jay, B.S.....	New York	Taylor, Clifford Morrison.....	Maryland
Hyman, Morris, A.B.....	Connecticut	Thumim, Mark, B.S.....	New York
Kenler, Myron Lewis, A.B.....	Maryland	Turano, Leonard Francis, B.S.,	
Kent, Ann Patrick, A.B.,			New York
	District of Columbia	Van Metre, John Lee, A.B.,	
Keown, Lauriston Livingston, A.B.,			West Virginia
	Maryland		

Way, Samuel Eason, A.B.,	Woodard, Barney Lelon, B.S.,
North Carolina	North Carolina
Weisman, Samuel.....Maryland	Woodford, Thomas Larry, A.B., B.S.,
Wieciech, Michael Joseph Soltis, A.B.,	West Virginia
Maryland	Zager, Saul, B.S.....New Jersey
Wolbert, Frank Olaf.....Maryland	

Honors

University Prize Gold Medal.....	James Irving Moore
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Certificates of Honor

Manuel Espinosa	Harold Henry Aaron
Meyer Leo Goldman	Meyer George Etkind
Kermit Edward Osserman	

Prizes

The Doctor A. Bradley Gaither Memorial Prize of \$25.00 for the best work in genito-urinary surgery during the senior year.....	Samuel Weisman
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MATRICULATES

1932-1933

FOURTH YEAR CLASS, 1932-1933

Aaron, Harold Henry, B.S.....New York	Goldman, Alexander Blodnick, B.S.,
Baker, George Stansbury, M.A.,	New York
Maryland	Goldman, Meyer Leo, A.B.,
*Baldwin, Kenneth Malison.....Maryland	New York
Barnhardt, Albert Earl, A.B.,	Gorrell, James Stanley, A.B.,
North Carolina	Maryland
Beanstock, Sam., B.S.....New York	Griggs, William Lemuel, Jr., B.S.,
Becker, Martin, M.S.....New Jersey	North Carolina
Bellin, David Elias, M.A.....New York	Harris, Earle Harold.....New York
Bernstein, Joseph Cecil.....Maryland	Hedgpeth, Louten Rhodes, B.S.,
Blitzman, Louis, B.S.....New York	North Carolina
Bowman, Harry Daniel, B.S.,	Hemminger, Earl Wentworth, B.S.,
Maryland	Pennsylvania
Cohen, Marvin Meyer, B.S.,	Highstein, Gustav.....Maryland
New Jersey	Himelfarb, Albert Joseph, A.B.,
Comegys, Richard Williamson, A.B.,	Maryland
Maryland	Hoover, William Alonzo, B.S.,
Diehl, Harold Clayton, B.S.....Maryland	North Carolina
Di Stasio, Frank, B.S.....Connecticut	Hurwitz, George Hillel, A.B.,
Drucker, Victor, B.S.....New York	Connecticut
Emanuel, Meyer, B.S.....New York	Hyman, Joseph Jay, B.S.....New York
Espinosa, Manuel, B.S.....Porto Rico	Hyman, Morris, A.B.....Connecticut
Etkind, Meyer George, B.S.	Kenler, Myron Lewis, A.B.....Maryland
Connecticut	Kent, Ann Patrick, A.B.,
Fineman, Jerome.....Maryland	District of Columbia
Fox, Haskell Wright, B.S.,	Keown, Lauriston Livingston, A.B.,
North Carolina	Maryland
Franklin, Frank Anthony, B.S.,	Kimmel, Charles, B.S.....New Jersey
New Jersey	Kochman, Leon Arthur.....Maryland
Garrison, Ralph Bernard, B.S.,	Konigsberg, Wilfred Kane, A.B.,
North Carolina	New York

FOURTH YEAR CLASS, 1932-1933—Continued

Lentz, George Ellard, B.S.,
 Pennsylvania
 Lifland, Bernard Daniel, B.S.,
 New Jersey
 Lowman, Milton Edward, A.B.,
 Maryland
 Malinoski, Wallace Henry.....Maryland
 Matheke, George Adolph, B.S.,
 New Jersey
 Miller, Benjamin, B.S.....New York
 Miller, Meyer George, B.S.....New York
 Moore, James Irving, A.B.....Maryland
 Novenstein, Sidney, A.B.....Connecticut
 Osserman, Kermit Edward, A.B.,
 New York
 Peer, George Foster.....West Virginia
 Pico, Jose Teodoro, B.S.....Porto Rico
 Racusin, Nathan.....Maryland
 Robinson, Daniel Robert, B.S.,
 New York
 Rosenberg, Arthur, B.S.....New York
 Rosenfeld, David Herman.....Maryland
 Rubin, Samuel S.....Maryland
 Rutland, Hedley Ethelbert, B.S.,
 Pennsylvania
 Sager, Harold, B.S.....New Jersey
 Scarborough, Asa Mark,
 South Carolina
 Schiff, Hyman, A.B.....Maryland
 Schiff, Joseph, A.B.....Maryland
 Schindler, Blane Markwood.....Maryland

Schneiman, Maurice Harris, A.B.,
 Pennsylvania
 Schochet, George.....Maryland
 Schwartz, Alec Robert, B.S.,
 Pennsylvania
 Schwartz, Paul M.....Maryland
 Sewell, Stephen, Ph.M.....New Jersey
 Shea, Cornelius Joseph.....Connecticut
 Shinn, George Clyde.....North Carolina
 Smith, Ashby Wade.....Virginia
 Stackhouse, Howard, Jr.....New Jersey
 Stern, Maurice Lee, A.B.,.....New York
 Taylor, Clifford Morrison.....Maryland
 Thumim, Mark, B.S.....New York
 Turano, Leonard Francis, B.S.,
 New York
 Van Metre, John Lee, A.B.,
 West Virginia
 Way, Samuel Eason, A.B.,
 North Carolina
 Weisman, Samuel.....Maryland
 Wiecech, Michael Joseph Soltis, A.B.,
 Maryland
 Wolbert, Frank Olaf.....Maryland
 Woodard, Barney Lelon, B.S.,
 North Carolina
 Woodford, Thomas Larry, A.B., B.S.,
 West Virginia
 Zager, Saul, B.S.....New Jersey

* Did not complete the year.

THIRD YEAR CLASS, 1932-1933

Abramovitz, Leonard Jerome, A.B.,
 Maryland
 Adams, Thurston Ray.....North Carolina
 Austraw, Henry Harrison.....Maryland
 Bayer, Ira Eugene.....Maryland
 Bayley, George Schwing.....Pennsylvania
 Berenstein, Stanley Harry, B.S.,
 Maryland
 Blum, Louis Vardee, A.B.,.....Delaware
 Brodey, David Franklin, A.B.,
 New York
 Burgtorf, George Edward, B.S.,
 Maryland
 Campbell, Edgar Thrall, A.B.,
 Maryland
 Caples, Delmas.....Maryland
 Carliner, Paul Elliott.....Maryland
 Cassidy, William Adrian, A.B.....Maine
 Coates, Stephen Paul, A.B.....New York
 Cohen, Lawrence Jack.....Maryland
 Cooper, Jules.....New Jersey
 Deitz, Joseph Robert, A.B.....New Jersey
 Diener, Samuel.....Maryland
 Dorman, George Edward, B.S.,
 Pennsylvania

Downey, Regis Fallon, B.S.,
 Pennsylvania
 Dreher, Robert Hering, B.S.,
 Pennsylvania
 Dunbar, John Charles.....Pennsylvania
 Echols, John Edward.....West Virginia
 Farr, Robert Wilbur, B.S.....Maryland
 Fearing, William Lumsden
 North Carolina
 Feldman, Leon Henry.....Maryland
 Finegold, Joseph, B.S.....Pennsylvania
 Gaskel, Jason Howard, A.B.....Maryland
 Gelb, Jerome, B.S.....New Jersey
 Gelman, Sidney.....New Jersey
 Goldstone, Herbert.....Maryland
 Goodhand, Charles Luther, A.B.,
 Maryland
 Goodman, Howard.....Maryland
 Gordon, Joseph.....Maryland
 Gutman, Isaac.....Maryland
 Hanigsberg, Murray Joseph, B.S.,
 New York
 Healy, Robert Fairbank, B.S.,
 Maryland

THIRD YEAR CLASS, 1932-1933—Continued

Hoffman, Edward Sayer, A.B.,
New York
Horan, William Henry, A.B.,
Pennsylvania
Howard, William Lawrence, B.S.,
Maryland
Hummel, Leonard Malcolm..... Maryland
Hunt, Josiah Arnold, B.S..... Maryland
Hurwitz, Abraham..... Maryland
Insley, Philip Asbury, B.S..... Maryland
Janousky, Nathan Bonny..... Maryland
Jerardi, Joseph Victor, B.S..... Maryland
Johnson, Thorwald..... California
Kafer, Oscar Adolph..... North Carolina
Kallins, Edward Selig..... Maryland
Katz, Simon, A.B..... New York
Ketz, Wesley John..... Pennsylvania
Knoll, William, B.S..... New York
Lawler, Thomas Gorman, A.B.,
California
Leass, Reuben, B.S..... New York
Leavitt, Abraham Charles, B.S.,
Massachusetts
Levin, Manuel, A.B..... Maryland
Levin, Milton..... Maryland
Maginnis, Helen Irene, A.B.,
Maryland
Mains, Marshall Paul, A.B..... Wisconsin
Marlett, Neumann Clyde, Mus.B.,
New Jersey
McNally, Hugh Bernard..... Maryland
Millett, Joseph..... Pennsylvania
Mirow, Richard Raymond..... New York
Moore, Alfred Charles, A.B..... Maryland
Moulton, Olin Cates, A.B..... Maine
Mund, Maxwell Herschel..... Maryland
Needleman, Max, B.S..... New York
O'Connor, Raymond Francis,
Pennsylvania
Orans, Alfred Abraham, A.B.,
New York
Rabinowitz, Jacob Herbert, B.S.,
New Jersey
Ray, William Turner..... North Carolina
Reardon, William Thomas, A.B.,
Delaware

Roberson, Edward Leon, B.S.,
North Carolina
Rosen, Morris, A.B..... Pennsylvania
Rosenthal, Charles Morton, B.S.,
New York
Rudo, Nathan..... Maryland
Sacks, Milton Samuel..... Maryland
Sasscer, James Ghiselin, B.S.,
Maryland
Satulsky, Emanuel Milton,
New Jersey
Schwartz, Daniel James..... Maryland
Schwartz, Theodore Allison..... Maryland
Sedlacek, Joseph Arthur..... Maryland
Sekerak, Richard John Stephen,
Connecticut
Siegel, Benjamin Israel..... Maryland
Siegel, Milton, B.S..... New York
Smith, William Benjamin..... Maryland
Snyder, John Newcomer..... Pennsylvania
Solod, Bernard Walter, A.B.,
Maryland
Soltz, William Boyer, B.S..... New York
Sproul, Dorothy Gertrude, B.S.,
M.S.S..... Massachusetts
Stein, Milton Robert..... Maryland
Stephens, Wilson Paschall, B.S.,
Virginia
Stutzman, Clyde Malverne, B.S.,
Pennsylvania
Sugar, Samuel Jacob, B.S..... Maryland
Sutton, Harold Lawrence, A.B.,
New Jersey
Taylor, Andrew Du Val,
North Carolina
Terman, Irving, A.B..... New York
Timberlake, Landon, A.B..... Virginia
Tuerk, Isadore..... Maryland
Udkow, Samuel, B.S..... New York
Wagner, Richard, A.B..... New Jersey
Warshawsky, Harry, B.S..... New York
Wilder, Earle Maurice..... Maryland
Wolfe, William David, A.B..... Maryland
Zurawski, Charles, Ph.B.,
Rhode Island

SECOND YEAR CLASS, 1932-1933

Adelman, Milton Harris, B.S.,
New York
Albrittain, John Warren, B.S.,
Maryland
Alessi, Edward James..... Maryland
Alonso, Miguel, B.S..... Porto Rico
Alpert, George, A.B..... Massachusetts
Aungst, Melvin Rauch..... Pennsylvania
Battaglia, Dominic Thomas, B.S.,
Maryland

Bierer, Dan George, B.S.,
Pennsylvania
Bock, Charles Aloysius, B.S.,
Pennsylvania
Booth, Harold Thomas, A.B.,
New York
Brouillet, George Hector,
Massachusetts
Cohen, Philip..... New Jersey

SECOND YEAR CLASS, 1932-1933—Continued

Coplin, George Joseph, B.S., New Jersey	MacLaughlin, Donald Clay, A.B., Maryland
Cornbrooks, Ernest Ivon, Jr., A.B., New Jersey	Marek, Charles Bernard Maryland
Cotter, Edward Francis..... Maryland	Mays, Howard Brooks..... Maryland
Davidson, Nachman, A.B..... Maryland	McDonough, Oscar Tracy, Jr., A.B., Pennsylvania
Diekey, Francis George, A.B., Maryland	McGregor, Alpine Watson..... Utah
Diehl, Earl Henry..... Maryland	McGregor, Lorenzo Watson..... Utah
Dodge, Douglas Rude..... Michigan	McHenry, DeArmond John, B.S., Pennsylvania
Doerner, Alexander Andrew, A.B., New York	Mech, Karl Frederick..... Maryland
Du Bois, Robert Lionel..... Connecticut	Montgomery, Bruce Pennsylvania
Dunnigan, William Charles, A.B., Maryland	Noon, Milton A..... Maryland
Einhorn, Samuel Edward..... New Jersey	Pepe, Anthony James, B.S., Connecticut
Ewald, August Ludwig, B.S., Maryland	Pugatsky, David..... Maryland
Fader, Ferdinand, A.B. New Jersey	Raffel, William..... Maryland
Freeman, Irving, B.S..... Maryland	Reier, Charles Henry..... Maryland
Fruchtbaum, Robert Pearson, B.S., New Jersey	Robinson, Harry Maximilian, Jr., Maryland
Galitz, Philip Jacob, A.M..... New York	Robinson, Milton Irving..... New York
Gerwig, Walter Henry, Jr., West Virginia	Rodgers, Leo David..... Maryland
Godbey, John Randolph, West Virginia	Rosen, Israel, A.B..... Maryland
Grenzer, William Howard, A.B., Maryland	Rosen, Sol Hyman..... New Jersey
Gross, Joseph Bernard..... Maryland	Rosenberg, Harold William, B.S., New York
Hammill, Gerard Paul, B.S., Pennsylvania	Russell, John Carroll..... Maryland
Harris, Aaron Maryland	Schmitt, George Frederick, Jr., Maryland
Hartman, Ira Frank, A.B., B.S., West Virginia	Schmulovitz, Maurice Jacob, A.B., Maryland
Heghinian, Jeannette Rosaline E., Maryland	Schonfeld, Paul..... Maryland
Helfrich, William Goldsborough, B.S., Maryland	Shapiro, Joseph, A.B. New York
Herald, James Kennedy..... Ohio	Shapiro, Sydney Harold..... New York
Herrold, Lewis Charles, B.S., Pennsylvania	Shaul, John Melvin, A.B..... New York
Hollander, Arthur, B.S..... New York	Shub, Morris Maryland
Hugg, John Henry, B.S..... Pennsylvania	Siscovick, Milton..... Maryland
Kaminsky, Aaron Louis, B.S., New Jersey	Spitznagle, Vernon Edward, B.S., Maryland
Kane, Harry Francis, A.B..... Maryland	Stein, Benjamin Maxwell, B.S., New York
Keller, Michael Lawrence..... New Jersey	Teitel, Louis, B.S..... New York
Klein, Harold Henry..... Pennsylvania	Tuby, Joseph, B.S..... New York
Klompus, Irving, A.B..... New Jersey	Vozel, Luther F..... Maryland
Knowles, Frederick Edwin, Jr., B.S., New Jersey	Waghelstein, Julius Meyer..... Maryland
Laino, Frank Armento, B.S., Maryland	Warren, John McCullen, North Carolina
Layton, Caleb Rodney..... New York	Williams, Jesse Frank, B.S., West Virginia
Lewis, Archie Clifton..... Maryland	Williamson, Charles Vernon, Maryland
Lichtenberg, Walter, A.M..... New York	Wilson, Norman James, B.S., Maryland
Lieb, Saul, A.B..... New Jersey	Wode, Alvin Eugene William, Maryland
Llewelyn, Louis Grandin, A.B., Maryland	Wood, Everet Hardenbergh, A.B., New Jersey
	Woodward, Lewis Klair, Jr., A.B., Maryland

FIRST YEAR CLASS, 1932-1933

Aites, James William.....	Pennsylvania
Balles, Edward Samuel, A.B.,	New Jersey
*Barry, James Francis, Jr., B.S.,	Pennsylvania
Batalion, Abraham Louis	Maryland
Bernstein, Milton, A.B.....	Maryland
Bieren, Roland Essig.....	Maryland
Bowie, Harry Clay.....	Maryland
Bricker, John Samuel, B.S.....	Maryland
Burka, Irving	District of Columbia
Burns, Harold Hubert.....	Pennsylvania
Burton, Jerome Kermit.....	Maryland
Bush, Joseph Edgar, A.B.....	Maryland
Carlson, Carl Edwin.....	Connecticut
Cocimano, Joseph Michael,	District of Columbia
Connolly, John Calhoun,	North Carolina
Cranage, Bidwell Chapman, A.B.,	Michigan
Ctibor, Vladimir Frantisek, A.B.,	New Jersey
Czekaj, Leo Michael.....	Maryland
Dabrowski, Benjamin Anthony, A.B.,	Maryland
Davis, George Howey, B.S.....	Maryland
Deehl, Seymour Ralph.....	New Jersey
Deradorian, Neshon Edward, B.S.,	Connecticut
Dixon, Darius McClelland, B.S.,	Maryland
Drozd, Joseph.....	Maryland
Ensor, Bennett Scott, A.B.....	Maryland
Evans, Cornelius George	New Jersey
Feirer, Edward Wendelin, A.B.,	New Jersey
Feldman, Jerome.....	Maryland
Feldman, Philip Michael.....	New York
Fichtner, Albon Russell.....	Pennsylvania
Finn, John Hannon, A.B.,	Massachusetts
Fissel, John Edward.....	Maryland
*Flannery, Vern Lester.....	Maryland
Frich, Michael Garland.....	Pennsylvania
Gillis, Marion Howard.....	Maryland
Gimbel, Harry Solomon, A.B.,	Maryland
Glassner, Frank	Maryland
Gordner, Jesse Walter, Jr., B.S.,	Pennsylvania
Graf, Emil Theodore, B.S.,	Pennsylvania
Greengold, David Bernard, A.B.,	Maryland
Gregory, Philip Orson.....	Maine
Greifinger, William, A.B.....	New Jersey
Gresham, Francis Rhett, A.B.,	Maryland
Grollman, Jaye Jacob.....	Maryland
Hannon, Neil Joseph, Jr., A.B.,	New York
Heneson, Henry.....	Maryland
Herman, Daniel Loeb, A.B.....	Maryland
Insley, James Knox, Jr., A.B.,	Maryland
Isaacs, Benjamin Herbert, A.B.,	Maryland
Jones, Ceirianog Henry,	Pennsylvania
Jones, Emory Ellsworth, Jr.,	West Virginia
Jones, James Porter.....	West Virginia
Jules, Bernard Charles	Maryland
Kagen, Gordon Arthur, A.B.,	Pennsylvania
Karfgin, Walter Esselman, B.S.,	Maryland
Karpel, Saul, B.S.....	New York
Katz, Joseph.....	Maryland
Kleiman, Norman, A.B.....	Maryland
Klemkowski, Irvin Philip, A.B.,	Maryland
Knobloch, Howard Thomas,	Pennsylvania
Kolodner, Louis Joseph.....	Maryland
Krajcovic, Jesse John.....	Maryland
Kroll, Louis Joseph, A.B.....	Maryland
Lipin, Raymond Joseph.....	Maryland
Lowman, Morris Robert.....	Maryland
Mansfield, William Kenneth,	Pennsylvania
Marino, Irene Thelma.....	New York
Maser, Louis Robert.....	Maryland
McCauley, Arthur Franklin,	Maryland
McKnew, Hector Caldwell, Jr.,	Maryland
McNinch, Eugene Robinson, B.S.,	Pennsylvania
Moran, James Blessing, Ph.B.,	Rhode Island
Moran, James Patrick, B.S.,	New York
Moses, Benjamin Bernard.....	Maryland
Myerovitz, Joseph Robert	Maryland
Myers, Lyndon Beaver.....	Pennsylvania
Myers, William, B.S.....	Pennsylvania
Nestor, Thomas Agnew, Ph.B.,	Rhode Island

* Did not complete the year.

FIRST YEAR CLASS, 1932-1933—Continued

Nicholson, Morris John.....	Maryland	Solomon, Cyril.....	Maryland
Nowak, Sigmund Roman, B.S.,		Sorin, Matthew	Maryland
	Maryland	Spain, David Michael	New York
O'Brien, William Aloysius, Jr., A.B.,	New Jersey	Squires, Millard Fillmore, Jr.,	
			Maryland
*Owens, Maurice E. Broadas, Jr.,	Maryland	Stapen, Milton Honore, B.S.,	New York
Pannoni, Nicholas Albert, Ph.B.,	Massachusetts	*Statman, Bernhardt Joseph,	New Jersey
Parr, William Andrew.....	Maryland	Stecher, Joseph Louis.....	Maryland
Pastrick, William Stephen, B.S.,		Steinberg, Samuel.....	Maryland
	New Jersey	Stern, Morris Harold	New Jersey
*Paye, Emerson Charles, A. B.,	New York	Sunday, Stuart Dos Passos, A.B.,	
			Maryland
Pembroke, Richard Heber, Jr., A.B.,	Maryland	Terr, Isaac, B.S.....	New York
		Thomas, Anthony Joseph, Ph.B.,	Massachusetts
Pentecoste, Salvador Dante,	New Jersey		
		Tierney, Lawrence Matthew,	Connecticut
Reagle, Charles Donald, A.B.,			
	Maryland	Waller, William Kennedy, A.B.,	Maryland
Reichel, Samuel Marvin, A.B.,	Maryland		
		Weems, George Jones, A.B.....	Maryland
Reynolds, John Henry, Jr.,	Pennsylvania	Wehner, Daniel George	Maryland
		Weinstein, Jack Joseph	Maryland
Rochlin, Narcisse.....	Maryland	Wells, Gibson Jackson, A.B.,	
Roseman, Ralph Bernard, A.B.,	Pennsylvania		Maryland
		Wilfson, Daniel, Jr., A.B.....	Maryland
Rosenthal, Victor, B.S.....	New York	Wilkinson, Arthur Gilbert, A.B.,	Connecticut
Ruland, Louis Joseph.....	Maryland		
Schmieler, George Peter, B.S.,	Pennsylvania	Wolf, Nathan.....	Maryland
		Yavelow, Charles Sidney, A.B.,	New York
Selby, George Durward, A.B.,	Maryland		
		Zimring, Joseph George, B.S.,	New York
Shimanek, Lawrence Joseph,	Maryland		

* Did not complete the year.

SUMMARY OF STUDENT ENROLLMENT AS OF MARCH 15, 1933

Resident Collegiate Courses—Academic Year, 1932-33.	<i>College</i>		<i>Totals</i>
	<i>Park</i>	<i>Baltimore</i>	
College of Agriculture	200	.....	200
College of Arts and Sciences.....	793	.....	793
School of Dentistry.....	.....	431	431
College of Education	225	.....	225
College of Engineering	411	.....	411
Graduate School.....	251	.....	251
College of Home Economics.....	114	.....	114
School of Law .....	.....	188	188
School of Medicine .....	.....	413	413
School of Nursing .....	.....	111	111
School of Pharmacy .....	.....	365	365
Total.....	1,994	1,508	3,502
Summer School, 1932.....	1,033	.....	1,033
Extension Courses:			
Industrial Education			
(Collegiate Credit).....	200	.....	200
Mining (Sub-Collegiate Credit).....	520	.....	520
Grand Total	3,747	1,508	5,255
Less Duplications.....	.....	.....	295
Net Total.....	.....	.....	4,960

Enrollment in Short Courses of from two to seven days; Rural Women, 543; Boys' and Girls' Club, 266; Volunteer Firemen, 90; Cannerymen, 110; Florists, 225; Nurserymen, 88; Practice School in the Summer Session, 38.

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The names listed above are officers for the term beginning July 1, 1933, and ending June 30, 1934.

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This Board is incorporated by act of the Legislature of the State, its legal title being "The Trustees of the Endowment Fund of the University of Maryland," and is independent and self-perpetuating. Its powers are limited *to the expenditure of the interest derived from the various funds*, which is applied as directed by donors for the benefit of the University. Contributions, donations and bequests are solicited from Alumni and friends. They may be made to the general or University Fund, to the Medical Fund or to any other department of the University. If intended for the School of Medicine, they may be given to the general medical fund or to some special object, as building, research, library, pathology, hospital, publication, laboratories, gymnasium, scholarship, medal, prize, etc., in which case the wishes of the donor will be strictly regarded. Attention is invited to the "Charles Frick Research Fund," already established in memory of that distinguished investigator. Checks should be made payable to Endowment Fund of the University of Maryland, J. M. H. Rowland, Treasurer, Lombard and Greene Streets, Baltimore, Md.

FORMS OF DEVISE OR BEQUEST

To School of Medicine

I give, devise and bequeath to the Regents of the University of Maryland, a corporation incorporated under the laws of the State of Maryland, for the benefit of the Faculty of Physic.....

(Here state amount or describe property)

To Endowment Fund

I give, devise and bequeath to the Trustees of the Endowment Fund of the University of Maryland, a corporation incorporated under the laws of the State of Maryland, for the benefit of the Faculty of Physic.....

(Here state amount or describe property)

THE UNIVERSITY OF MARYLAND SCHOOL OF NURSING

FACULTY AND INSTRUCTORS

Superintendent of Nurses and Director of School of Nursing,
ANNIE CRIGHTON, R.N.

Assistant Superintendent of Nurses,
VESTA SWARTZ, R.N.

Instructor in Nursing,
LILLIE HOKE, R.N.

Instructor of Nursing and Supervisor of Wards,
HELEN WRIGHT, R.N.

*Instructor in Surgical Technique for Nurses and
Supervisor of Operating Pavilion,*
ELIZABETH AITKENHEAD, R.N.

Instructor in Dietetics,
MIRIAM CONNELLY.

Instructor in Massage,
EDITH WALTON.

*Assistant Instructor in Nursing and
Supervisor of Wards,*
BERTHA HOFFMAN, R.N.

MARIE OLGA COX, R.N.	Night Supervisor
EVA HOLLOWAY, R.N.	Supervisor—Dispensary
BEATRICE KRAUSE, R.N.	Head Nurse—Obstetrical Ward
ESTELLA BALDWIN, R.N.	Head Nurse—Children's Ward
GRACE DICK, R.N.	Head Nurse—Men's Medical Ward
NAOMI ALLEN, R.N.	Head Nurse—Men's Surgical Ward
ELIZABETH CANNON, R.N.	Head Nurse—Men's Surgical Ward
FREDA FAZENBAKER, R.N.	Head Nurse—Women's Medical and Surgical Ward
LUCY A. BRUDE, R.N.	Head Nurse—Private Hall
EVA LAIGONEIL, R.N.	Head Nurse—Private Hall
CORA M. WILSON, R.N.	Head Nurse—Surgical Supply Room
TILLIE MOHAN	Supervisor—Nurse's Home
JOSEPHINE TOMS, R.N.	Assistant Head Nurse—Operating Room
CARRIE MILLER, R.N.	Assistant Head Nurse—Operating Room
EMMA WINSHIP, R.N.	Supervisor—Accident Department
CATHERINE RODENWALD, R.N.	Outside Obstetrical Service—Prenatal
STELLA U. RICKETTS, R.N.	Outside Obstetrical Service—Prenatal
RUTH YOUNG, R.N.	Outside Obstetrical Service—Delivery
ELIZABETH TRICE, R.N.	Outside Obstetrical Service—Delivery
HARRIET SCHROEDER, R.N.	Outside Obstetrical Service—Post-partum
EVELYN ZAPF, R.N.	Outside Obstetrical Service—Post-partum
LUELLA RODES, R.N.	Assistant Night Supervisor

LECTURERS FROM THE SCHOOL OF MEDICINE

Anatomy,

C. L. DAVIS, M.D.

Physiology,

FERD. A. RIES, M.D.

Bacteriology,

F. W. HACHTEL, M.D.

Materia Medica,

JOHN C. KRANTZ, JR., Ph.D.

Chemistry,

EMIL G. SCHMIDT, Ph.D.

RUTH C. VANDEN BOSCHE, B.S.

Medicine,

H. C. SMITH, M.D.

C. C. HABLSTON, M.D.

MYRON TULL, M.D.

Surgery,

CYRUS HORINE, M.D.

Obstetrics,

L. H. DOUGLASS, M.D.

Gynecology,

J. M. H. HUNDLEY, JR., M.D.

Pediatrics,

LORING C. JOSLIN, M.D.

Psychiatry and Neurology,

R. M. CHAPMAN, M.D.

Skin and Venereal Diseases,

HARRY M. ROBINSON, M.D.

Otology and Ophthalmology,

CLYDE A. CLAPP, M.D.

Laryngology and Rhinology,

E. A. LOOPER, M.D.

Orthopedic Surgery,

ALLEN FISKE VOSHELL, M.D.

Social Service,

SPECIAL LECTURES.

Dental,

HARRY B. MCCARTHY, D.D.S.

STUDENT ENROLLMENT

Seniors	24
Intermediates	30
Juniors and Preparatory.....	50
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Total.....	104

GENERAL INFORMATION

The University of Maryland School for Nurses was established in the year 1889.

Since that time it has been an integral part of the University of Maryland, coming under the same government.

The school is non-sectarian, the only religious services being morning prayers.

The University Hospital is a general hospital containing about 250 beds. It is equipped to give young women a thorough course of instruction and practice in all phases of nursing.

PROGRAMS OFFERED: The program of study of the school is planned for two groups of students: (a) the three-year group and (b) the five-year group.

REQUIREMENTS FOR ADMISSION: A candidate for admission to the School of Nursing must be a graduate of an accredited high school or other recognized preparatory school, and must present record showing that she has completed satisfactorily the required amount of preparatory study. Preference will be given to students who rank in the upper third of the graduating class in their preparatory schools.

Candidates are required to present 15 units for entrance. Required (7), and Elective (8) units for entrance.

Required: English (I, II, III, IV), 3 units; algebra to quadratics, 1 unit; plane geometry, 1 unit; history, 1 unit; science, 1 unit. Total, 7 units.

Elective: Astronomy, biology, botany, chemistry, civics, drawing, economics, general science, geology, history, home economics, vocational subjects, languages, mathematics, physical geography, physics, zoology, or any other subject offered in a standard high school or preparatory school for which graduation

credit is granted toward college or university entrance. Eight units must be submitted from this group, of which not more than four units may pertain to vocational subjects.

In addition to the above requirements, students must meet certain other definite requirements in regard to health, age and personal fitness for nursing work.

The preferable age for students registering for the three-year course is 20 to 35 years, although students may be accepted at the age of 18. Women of superior education and culture are given preference, provided they meet the requirements in other particulars. If possible, a personal interview with the Director of the School should be arranged on Tuesday or Friday from 11:00 A. M. to 12:00 M.

Blank certificates will be furnished upon application to the Director of the School of Nursing, University of Maryland Hospital, Baltimore, Maryland.

REGISTRATION WITH MARYLAND STATE BOARD OF EXAMINERS OF NURSES: By regulation of the Maryland State Board of Examiners of Nurses, all students entering schools of nursing in Maryland must, at the beginning of their course, register with the Board in order to be eligible for examination and license on completion of this course. Blanks necessary for this purpose will be sent with application forms. A fee of \$2 is charged for registration.

The fitness of the applicant for the work and the propriety of dismissing or retaining her at the end of her term of probation are left to the decision of the Director of the School. Misconduct, disobedience, insubordination, inefficiency, or neglect of duty are causes for dismissal at any time by the President of the University.

The requirements for admission to the five-year program of the School of Nursing are the same as for other colleges. (Special catalog will be sent upon request.) The three-year program is designed to meet the requirements for the diploma in Nursing and comprises the work of the first, second, and third hospital years.

ADMISSION TO THE SCHOOL: Students for the spring term are admitted in February and those for the fall term in September or October, and the five-year course in September.

HOURS OF DUTY: During the preparatory period the students are engaged in class work for the first four months with no general duty in the hospital; for the remainder of this period they are sent to the wards on eight-hour duty. During the first, second, and third years the students are on eight-hour day duty and nine-hour night duty, with six hours on holidays and Sundays. The night-duty periods are approximately two months each, with one day at the termination of each term for rest and recreation. The period of night duty is approximately five to six months during the three years.

The first four months of the preparatory period are devoted to theoretical instruction given entirely in the lecture and demonstration rooms of the training school, hospital, and medical school laboratories. The average number of hours per week in formal instruction, divided into lecture and laboratory periods, is 30 hours, and includes courses in Anatomy, Physiology, Cookery and Nutrition, Dosage and Solution, Hygiene, Bacteriology, Chemistry, Materia Medica, Practical Nursing, Bandaging, Ethics, and History of Nursing. During the last two months of the probation period the students are placed on duty in the hospital wards for instruction in bedside nursing, and are expected to perform the duties assigned to them by the Director of the School. At the close of the first semester the students are required to pass satisfactorily both the written and practical tests. Failure to do so will be sufficient reason for terminating the course at this point.

SICKNESS: A physician is in attendance each day, and when ill, all students are cared for gratuitously. The time lost through illness in excess of two weeks, during the three years, must be made up. Should the authorities of the school decide that through the time lost the theoretical work has not been sufficiently covered to permit the student to continue in that year, it will be necessary for her to continue her work with the next class.

VACATIONS: Vacations are given between June and September. A period of three weeks is allowed the student at the completion of the first year, and four weeks at the completion of the second year.

EXPENSES: A fee of \$50.00, payable on entrance, is required from all students. This will not be returned. A student receives her board, lodging, and a reasonable amount of laundry from the

date of entrance. During her period of probation she provides her own uniforms, obtained through the hospital at a nominal cost. After being accepted as a student nurse she wears the uniform supplied by the hospital. The student is also provided with text-books and shoes. Her personal expenses during the course of training and instruction will depend entirely upon her individual habits and tastes.

FIVE-YEAR PROGRAM

In addition to the regular three-year course of training, the University offers a combined Academic and Nursing program leading to the degree of Bachelor of Science and a Diploma in Nursing.

The first two years of the course (or pre-hospital period), consisting of 68 semester hours, are spent in the College of Arts and Sciences of the University, during which period the student has an introduction to the general cultural subjects which are considered fundamental in any college training. At least the latter of these two years must be spent in residence at College Park, in order that the student may have her share in the social and cultural activities of college life. The last three years are spent in the School of Nursing in Baltimore.

DEGREE AND DIPLOMA

The degree of Bachelor of Science and the Diploma in Nursing are awarded to students who complete successfully the prescribed combined academic and nursing program.

MERCY HOSPITAL SCHOOL OF NURSING

The Mercy Hospital School of Nursing was established in 1899 and incorporated under the laws of the State of Maryland in 1901. It has developed the art of the profession according to the high standard requisite to qualify for Registered Nurse.
Requirements for Admission.

A candidate desiring to enter the School of Nursing should apply to the Superintendent of Nurses by letter or in person at least six weeks before the entrance date. It is preferred that

she apply in person accompanied by her mother or guardian. If a personal interview is not possible, a written application may be submitted.

Age.

Candidates should be between the ages of eighteen and thirty-five years.

Physique.

Applicants should be of average height and good physique. Teeth and eyes should be attended to before entering the School, and tonsils removed if not in good condition. Every applicant is required to send in a certificate of health by her family physician. A physical examination is also made by the school physician during the preliminary period.

Education.

Applicants for admission should present at least high school certificate of graduation or its equivalent in educational values. The credits of preliminary education are fully accounted and the nurse who is the better qualified finds such a foundation more to her advantage as she progresses through the years of study.

Calendar.

Students are admitted September 1st and February 1st.

Length of Course.

The course of instruction covers three years. It is divided into a preliminary term of four months, a freshman term of eight months, a junior term of one year, and a senior term of one year.

Conditions of Acceptance.

The Superintendent of Nurses decides as to the fitness for the work and the propriety of retaining or dismissing a student at the end of the term of probation or during its course. She may also, with the approval of the faculty, terminate the connection of a student with the School in any justifiable instance. At the end of the preliminary period, if the student's health, general education, and natural aptitude prove satisfactory to the Director of the School and the Sister Superior, she shall be appointed for enrollment as a student nurse.

Expenses.

An admission fee of fifty dollars is required from all students. This covers the cost of uniforms and books required during the preliminary course.

Should the student for any reason leave the school before completing the course, this fee will not be returned, nor may she take with her any part of the equipment.

After four months' probation, candidates, if they possess the necessary qualifications, are admitted to the School of Nursing proper. They receive ten dollars per month to help defray incidental expenses. No other compensation is given, the education received being considered sufficient return for service rendered. Board, laundry, etc., are furnished by the institution.

Four weeks before admission candidates should forward the fifty-dollar entrance fee, and measurements for uniforms and aprons, which will be in readiness upon their arrival. No orders will be considered until this fee is received.

THE FIVE-YEAR COURSE

Leading to B.S. Degree and Diploma of Graduate Nurse

The University of Maryland, in affiliation with the Mercy Hospital School of Nursing, offers a combined Academic and Nursing program.

The completion of this course entitles the student to the degree of Bachelor of Science from the University of Maryland, and to the diploma of the Mercy Hospital School of Nursing.

Graduate nurses who hold college degrees are greatly in demand, especially for positions in administration and teaching. This program consequently offers a distinct advantage.

Outline of Course.

Two years of this course (pre-nursing or post-nursing period) consisting of 70 semester hours are spent in the College of Arts and Sciences of the University, with the usual College vacations. At least the latter of these two years must be spent in residence at College Park in order that the student may have her share in the social and cultural activities of college life.

Requirements for Admission.

Students electing such a course must, before entering the School of Nursing, satisfy the entrance requirements of the University of Maryland. Applicants must be personally adapted to professional nursing.

Fees and Other Expenses.

During the two years which the students spend at College Park they maintain themselves, and pay their own College fees. (See University of Maryland bulletin.)

Throughout the Nursing School Course the hospital provides, without expense to the student, maintenance and care during temporary illness.

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